

UNITED STATES DISTRICT COURT  
WESTERN DISTRICT OF WASHINGTON  
AT TACOMA

PUGET SOUNDKEEPER ALLIANCE,	)	
	)	No. 3:07-CV-05227-RJB
Plaintiff,	)	
	)	CONSENT DECREE
v.	)	
	)	
TACOMA METALS, INCORPORATED;	)	
and ROBERT D. POLLOCK,	)	
	)	
Defendants.	)	

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WHEREAS, Plaintiff Puget Soundkeeper Alliance filed a Complaint on May 4, 2007, a First Amended Complaint on February 4, 2008, a Second Amended Complaint on March 6, 2008, and a Third Amended Complaint on March 20, 2008 against Defendants Tacoma Metals, Inc. and Robert D. Pollock alleging violations of the Clean Water Act, 33 U.S.C. §§ 1251 et seq., and subchapter III of the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6921-39e, relating to discharges of stormwater from Defendant's facility located in Tacoma, Washington, and the management of waste material collected in the facility's stormwater treatment and conveyance system, and seeking declaratory and injunctive relief, civil penalties and attorneys fees and costs

CONSENT DECREE - 1  
No. 3:07-CV-05227-RJB

SMITH & LONEY, P.L.L.C.  
2317 EAST JOHN STREET  
SEATTLE, WASHINGTON 98112  
(206) 860-2883

1 (collectively, "Complaints");

2 WHEREAS, Defendants deny Plaintiff's claims and any liability for the alleged violations;  
3 and

4 WHEREAS, counsel for the parties to this action have engaged in discussions relating to  
5 the potential settlement of this litigation, which discussions have included an assessment of the  
6 facts surrounding the alleged violations; and

7  
8 WHEREAS, Defendants have undertaken, and are implementing, measures to further  
9 ensure compliance with the Clean Water Act and the Resource Conservation and Recovery Act at  
10 their facility and to address issues raised in the notices of intent to sue served by Plaintiff; and

11  
12 WHEREAS, Plaintiff and Defendants agree that settlement of these matters is in the best  
13 interest of the parties and the public, and that entry of this Consent Decree without additional  
14 litigation is the most appropriate means of resolving these actions; and

15  
16 WHEREAS, Plaintiff and Defendants, by their authorized counsel and without trial or final  
17 adjudication of the issues of fact or law, with respect to Plaintiff's claims or allegations, consent to  
18 the entry of this Consent Decree in order to avoid the risks of litigation and to resolve the  
19 controversy between them.

20  
21 NOW THEREFORE, without trial of any issue of fact or law, and without admission by  
22 the Defendants of the facts or violations alleged in the Complaints and upon consent of the  
23 parties, and upon consideration of the mutual promises herein contained, it is hereby

24  
25 ORDERED, ADJUDGED AND DECREED as follows:

- 26 1. This Court has jurisdiction over the parties and subject matter of this action;  
27 2. The undersigned representative for each party certifies that he or she is fully  
28

1 authorized by the party or parties whom he or she represents to enter into the terms and  
2 conditions of this Consent Decree and to legally bind the party or parties and their successors in  
3 interest to it;

4         3.       This Consent Decree shall apply to, and be binding upon, the parties, and upon the  
5 successors and assigns of the parties;

6         4.       All claims alleged in the Complaints against Defendant Robert D. Pollock are  
7 hereby dismissed with prejudice;

8         5.       This Consent Decree shall apply to Defendant Tacoma Metals' operation and/or  
9 oversight of its facility located at or about 1754 Thorne Road, Tacoma, Washington 98421 (the  
10 "Facility").

11         6.       This Consent Decree constitutes a full and complete settlement of the claims  
12 alleged in the Complaints in this case and all other claims known and unknown existing as of the  
13 date of entry of this Consent Decree, that could be asserted under the Clean Water Act, 33 U.S.C.  
14 §§ 1251-1387, and subchapter III of the Resource Conservation and Recovery Act, 42 U.S.C. §§  
15 6921-39e, arising from operations of the Facility identified in paragraph 5 of this Consent Decree.

16         7.       This Consent Decree shall not constitute evidence in any proceeding, an admission  
17 or adjudication with respect to any allegation of the Complaints, any fact or conclusion of law  
18 with respect to any matter alleged in or arising out of the Complaints, or the admissions or  
19 evidence of any wrongdoing or misconduct on the part of the Defendants or their successor.

20         8.       In full and complete satisfaction of the claims covered by the Complaints and all  
21 other claims covered by this Consent Decree, as described in Paragraph 6, Defendant Tacoma  
22 Metals, Inc. agrees to abide by and be subject to the following terms and conditions:

1           a. Defendant Tacoma Metals, Inc. shall comply fully with all conditions of its  
2 National Pollutant Discharge Elimination System Permit No. SO3-000682 and any successor,  
3 modified, or replacement permit (the "NPDES Permit");

4           b. No later than November 6, 2008, Defendant Tacoma Metals, Inc. shall  
5 submit to the City of Tacoma an application for all necessary permits for the installation of the  
6 stormwater treatment system described in the report attached hereto as Attachment A. Defendant  
7 Tacoma Metals shall thereafter in good faith and with due diligence endeavor to submit any  
8 additional paperwork the City of Tacoma might request to process the permit application. The  
9 stormwater treatment system shall be fully installed and operational within 120 days of the  
10 issuance of the necessary permits. Upon installation, Defendant Tacoma Metals shall operate and  
11 maintain the stormwater treatment system in accordance with the manufacturer's instructions. If  
12 Defendant Tacoma Metals is unable to obtain the regulatory approvals necessary for the  
13 installation of the stormwater treatment system described in Attachment A to this Consent Decree  
14 within 120 days from entry of this Consent Decree, Defendant Tacoma Metals shall prepare a  
15 Level Three Source Control Report, as that term is defined in Section S4.C of the NPDES  
16 Permit, within 180 days of entry of this Consent Decree that shall describe a stormwater treatment  
17 system that Defendant Tacoma Metals shall have fully installed and operational at the Facility  
18 within 300 days from the entry of this Consent Decree. The Level Three Source Control Report  
19 shall be prepared by a licensed engineer and the stormwater treatment system proposed therein  
20 shall, in the professional judgment of the licensed engineer, reduce the level of contaminants in the  
21 stormwater discharges at the Facility to or below the benchmark levels set in the NPDES Permit.  
22 The Level Three Source Control Report shall be provided to Plaintiff at the time it is completed;

1           c.       No later than October 22, 2008, Defendant Tacoma Metals shall submit to  
2 the City of Tacoma an application for all necessary permits for the installation of one or more  
3 additional warehouses at the Facility comprised of a minimum of 6,000 square feet of usable floor  
4 space. Defendant Tacoma Metals will thereafter in good faith and with due diligence endeavor to  
5 submit any additional paperwork the City of Tacoma might request to process the permit  
6 application. The additional warehouses(s) shall be fully installed within 120 days of the issuance  
7 of the necessary permits. If at any time thereafter it becomes apparent that the existing warehouse  
8 space is not sufficient to store all materials and equipment required to be stored under this  
9 Consent Decree, Defendant Tacoma Metals shall promptly install additional warehouse space  
10 pursuant to the same procedure set forth herein;  
11

12           d.       Within thirty days of the latter of Defendant Tacoma Metals' installation of  
13 the stormwater treatment system required under paragraph 8.b of this Consent Decree and  
14 construction of the additional warehouse space required under paragraph 8.c of this Consent  
15 Decree, Defendant Tacoma Metals shall provide to Plaintiff written notification of Defendant  
16 Tacoma Metals' completion of these obligations, and one-time access to the Facility sufficient to  
17 verify such fulfillment at a time mutually agreed upon by the parties;  
18  
19  
20

21           e.       Upon entry of this Consent Decree, Defendant Tacoma Metals shall load,  
22 unload, and store all materials contaminated with any fluids, including but not limited to cutting  
23 oils, machining fluids or any similar fluids used as a lubricant or coolant for metals cutting, and  
24 petroleum based fluids, in a manner that prevents these materials or fluids from coming into  
25 contact with stormwater. Any metals or other material contaminated with fluids that is stored  
26 outdoors must be stored in durable, corrosion resistant, non-leaking containers that are covered in  
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1 a manner that prevents contact with stormwater. It shall be a violation of the terms of this  
2 Consent Decree to load, unload or store fluids or materials contaminated with fluids, including  
3 cutting oils, in a manner that exposes them to stormwater or in containers that are uncovered or  
4 that leak;

5  
6 f. Within thirty days of entry of this Consent Decree, Defendant Tacoma  
7 Metals shall install and maintain metal screens and catch basin inserts in all stormwater catch basin  
8 at the Facility;

9  
10 g. Upon entry of this Consent Decree, Defendant Tacoma Metals shall  
11 inspect, maintain and clean all stormwater catch basins at the Facility at least once each week.  
12 During such inspections, Defendant Tacoma Metals shall replace all catch basin inserts that have  
13 become degraded. Defendant Tacoma Metals shall prepare a report or checklist for each such  
14 inspection that shall be signed by the person conducting the inspection and inserted into the  
15 Facility's stormwater pollution prevention plan. Defendant Tacoma Metals shall provide copies  
16 of these reports and checklists to Plaintiff on a quarterly basis;

17  
18 h. Upon entry of this Consent Decree, Defendant Tacoma Metals, Inc. shall,  
19 on at least a monthly basis, inspect all forklifts and other machinery used at the Facility for oil and  
20 other fluid leaks. Defendant Tacoma Metals shall prepare a report or checklist for each such  
21 inspection that shall be signed by the person conducting the inspection and inserted into the  
22 Facility's stormwater pollution prevention plan. Defendant Tacoma Metals shall provide copies  
23 of these reports and checklists to Plaintiff on a quarterly basis. Defendant Tacoma Metals shall  
24 immediately remove any forklift or other machinery from service at the Facility upon discovery of  
25 an oil or other fluid leak and store such forklift or other machinery indoors. If it is not possible to  
26  
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28

1 store the equipment indoors, it shall be stored in a manner that prevents oils or other fluids from  
2 coming into contact with stormwater. Any forklift or other machinery found to have an oil or  
3 other fluid leak shall not return to service at the Facility until such time as the equipment has been  
4 repaired and the fluid leak properly sealed;

5  
6 i. Upon entry of this Consent Decree, Defendant Tacoma Metals, Inc. shall  
7 store all forklifts and other mobile equipment, but excluding cranes and motor vehicles such as  
8 cars, trucks and other similar vehicles, used at the Facility indoors during periods that the Facility  
9 is not operating and during times when the forklift or other mobile equipment is not expected to  
10 be used for at least six consecutive hours;

11  
12 j. Upon entry of this Consent Decree, Defendant Tacoma Metals, Inc. shall  
13 either 1) assign one full-time employee whose sole job it is to sweep all outdoor exposed  
14 impervious surfaces at the Facility, or 2) purchase or contract a high efficiency sweeper—either  
15 vacuum or regenerative air sweeper—that will be used to sweep all outdoor exposed impervious  
16 surfaces where industrial activities are occurring on at least a daily basis, and all other outdoor  
17 exposed impervious surfaces at least once a week;

18  
19 k. Upon entry of this Consent Decree, Defendant Tacoma Metals shall  
20 conduct weekly inspections of the entire Facility to evaluate whether Defendant Tacoma Metals is  
21 in compliance with the terms of its NPDES Permit and this Consent Decree. Defendant Tacoma  
22 Metals shall prepare a checklist or report for these inspections that shall be signed by the person  
23 doing the inspection and inserted into the Facility's stormwater pollution prevention plan. The  
24 checklist or report shall specifically include verification that Defendant Tacoma Metals is either in  
25 compliance or out of compliance with each of its obligations described in this Consent Decree.  
26  
27  
28

1 Defendant Tacoma Metals shall provide copies of these reports and checklists to Plaintiff on a  
2 quarterly basis;

3           1.       No later than December 22, 2008, Defendant Tacoma Metals shall retain  
4 Taylor and Associates, Inc., located at 7104 Greenwood Ave. N., Seattle, WA 98103 ("Taylor &  
5 Assocs."), to conduct all stormwater sampling at the Facility required by the NPDES Permit.  
6  
7 Under the terms of the retention agreement entered into by Defendant Tacoma Metals, Taylor &  
8 Assocs. shall be responsible for collecting all stormwater samples, delivering such samples to the  
9 appropriate laboratory for analysis, and reporting the results of the analysis to Defendant Tacoma  
10 Metals. Also under the terms of the retention agreement entered into by Defendant Tacoma  
11 Metals, Taylor & Assocs. shall forward a copy of all the stormwater sampling laboratory results  
12 to Plaintiff at the same time such results are reported to Defendant Tacoma Metals. The  
13 obligations described in this sub-paragraph 8.1 shall terminate, and Defendant Tacoma Metals may  
14  
15 discontinue the retention of Taylor & Assocs. for its provision of the services described in this  
16 sub-paragraph 8.1, the latter of, starting with the time Defendant Tacoma Metals has fully installed  
17 and operational the stormwater treatment system required under paragraph 8.b of this Consent  
18 Decree, either a period of three years or once twelve stormwater events have been sampled and  
19 reported. Defendant Tacoma Metals shall be solely responsible for all costs associated with the  
20 requirements of this sub-paragraph 8.1, for ensuring that the retention agreement it enters into  
21 with Taylor & Assocs. meets the requirements of this sub-paragraph 8.1, and for ensuring that the  
22 information is forwarded to Plaintiff as required;  
23  
24  
25

26           m.       No later than December 22, 2008, Defendant Tacoma Metals shall retain  
27 Taylor & Assocs. to conduct six inspections of the Facility and to produce a report summarizing  
28



1 the results of each such inspection. Such inspections shall be for the purpose of determining  
2 whether Defendant Tacoma Metals is complying with the Clean Water Act, its NPDES Permit  
3 and the terms of this Consent Decree. Under the terms of the retention agreement entered into by  
4 Defendant Tacoma Metals, Taylor & Assocs. shall prepare a report summarizing the results of  
5 each such inspection that shall be simultaneously provided to Plaintiff and Defendant Tacoma  
6 Metals. The inspections shall be conducted in six month intervals with the first inspection  
7 occurring within six months from the entry of this Consent Decree. Defendant Tacoma Metals  
8 shall be solely responsible for all costs and expenses associated with these inspections, including  
9 the production of the reports, for ensuring that the retention agreement it enters into with Taylor  
10 & Assocs. meets the requirements of this sub-paragraph 8.m, and for ensuring that the  
11 information is forwarded to Plaintiff as required. Defendant Tacoma Metals shall provide Plaintiff  
12 with a copy of the draft retention agreement with Taylor & Assocs. prior to its execution to  
13 ensure that it meets the specifications of this Consent Decree;  
14  
15  
16

17 n. If, after installation of the stormwater treatment system required by  
18 paragraph 8.b of the Consent Decree, stormwater discharge samples at the Facility exceed the  
19 NPDES Permit benchmark for any of the sampled parameters more than once in a calendar year,  
20 Defendant Tacoma Metals shall conduct an assessment of the exceedances and shall implement  
21 additional best management practices within six months of the second exceedance to prevent  
22 future exceedances;  
23  
24

25 o. Defendant Tacoma Metals, Inc. shall, for a period of three years beginning  
26 on the date that this Consent Decree is entered by the Court, forward copies to Plaintiff of all  
27 written and electronic communications between Defendant Tacoma Metals, Inc. and the  
28

1 Washington Department of Ecology concerning Defendant Tacoma Metals, Inc.'s compliance  
2 with the NPDES Permit and the Clean Water Act, including but not limited to Discharge  
3 Monitoring Reports, Level One, Two, or Three response reports or similar adaptive management  
4 reports, correspondence, and inspection reports. During this same period Defendant Tacoma  
5 Metals, Inc. shall additionally forward copies to Plaintiff of all reports and checklists of all  
6 inspections and visual monitoring conducted at the Facility pursuant to the NPDES Permit and  
7 this Consent Decree. During this same period Defendant Tacoma Metals shall additionally  
8 forward copies to Plaintiff of any revisions and/or updates made to its stormwater pollution  
9 prevention plan. All copies shall be forwarded directly to Plaintiff on a quarterly basis and not  
10 later than the forty-fifth day following the end of each calendar quarter;  
11

12  
13 p. If, beginning two years after the stormwater treatment system required by  
14 paragraph 8.b of this Consent Decree is fully installed and operational, the analytical results of  
15 stormwater discharge samples collected at the Facility and reported by Defendant Tacoma Metals  
16 on the discharge monitoring reports submitted to the Department of Ecology pursuant to the  
17 terms of the NPDES Permit do not exceed the benchmark values set in the NPDES Permit for any  
18 of the sampled parameters more than once in any eight consecutive quarters in which  
19 representative samples are collected, then Defendant Tacoma Metals Inc. shall be relieved of the  
20 obligations imposed under paragraphs 8(g), 8(h), and 8(k) of this Consent Decree;  
21

22  
23 9. Not later than thirty days after the date of entry of this Consent Decree, Defendant  
24 Tacoma Metals shall make five payments totaling \$135,000 (ONE HUNDRED AND THIRTY-  
25 FIVE THOUSAND DOLLARS) for the projects described in Attachments B through F of this  
26 Consent Decree. Each of the five payments shall be made by check and shall bear the notation  
27  
28

1 “Puget Soundkeeper Alliance v. Tacoma Metals, Inc., Clean Water Act Settlement,” with copies  
2 provided to Plaintiff at the time of payment. The five payments shall be made as follows:

3 a. Payment of \$20,000 (TWENTY THOUSAND DOLLARS) to the Friends  
4 of the Hylebos for the Spring Valley Ranch, Kim Property, Streamside Invasive Weed Removal  
5 and Treatment Project described in Attachment B to this Consent Decree. The payment shall be  
6 made payable to and mailed to Friends of the Hylebos, P.O. Box 24971, Federal Way, WA  
7 98093, Attn: Chris Carrel;

8  
9 b. Payment of \$30,000 (THIRTY THOUSAND DOLLARS) to the  
10 Stewardship Partners for the Rain Garden Classroom Training and Installation Workshops Project  
11 described in Attachment C to this Consent Decree. The payment shall be made payable to and  
12 mailed to Stewardship Partners, 1411 4th Avenue, Suite 1425, Seattle, WA 98101, Attn: Dave  
13 Burger;  
14

15  
16 c. Payment of \$20,000 (TWENTY THOUSAND DOLLARS) to Citizens for  
17 a Healthy Bay for the Adopt-A-Wildlife Habitat Stewardship Program described in Attachment D  
18 to this Consent Decree. The payment shall be made payable to and mailed to Citizens for a  
19 Healthy Bay, 917 Pacific Avenue, Suite 100, Tacoma, WA 98402, Attn: Leslie Ann Rose;  
20

21 d. Payment of \$45,000 (FORTY-FIVE THOUSAND DOLLARS) to the  
22 Puyallup Tribe of Indians for the Clarks Creek Dissolved Oxygen Study Project described in  
23 Attachment E to this Consent Decree. Payment shall be made payable and mailed to Puyallup  
24 Tribe of Indians, 3009 E. Portland Avenue, Tacoma, WA 98404, Attn: Char Naylor;  
25

26 e. Payment of \$20,000 (TWENTY THOUSAND DOLLARS) to People for  
27 Puget Sound for the South Sound Water Quality Monitoring Project described in Attachment F to  
28

1 this Consent Decree. Payment shall be made payable to and mailed to People for Puget Sound,  
2 911 Western Avenue, Suite 580, Seattle, WA 98104, Attn: Heather Trim;

3 10. For a period of three years from the date the stormwater treatment system required  
4 under paragraph 8.b of this Consent Decree is installed, Defendant Tacoma Metals shall make a  
5 payment of \$2,500 (TWO THOUSAND FIVE HUNDRED DOLLARS) each time a stormwater  
6 discharge sample collected at the Facility pursuant to the provisions of the NPDES Permit or this  
7 Consent Decree exceeds the following levels: total copper 63.6 µg/L; total lead 81.6 µg/L; total  
8 zinc 117 µg/L; petroleum oil and grease 15 mg/L; turbidity 25 NTU; total suspended solids 30  
9 mg/L; and pH outside the range of 6 to 9 standard units. All payments made under the terms of  
10 this paragraph shall be made within thirty (30) days of the exceedance to the Environmental  
11 Coalition of South Seattle for its Lower Green/Duwamish Stormwater Initiative and/or its Pierce  
12 County Stormwater Initiative, both of which are described in Attachment G to this Consent  
13 Decree. Division of all payments made by Defendant Tacoma Metals under the terms of this  
14 paragraph between these two projects shall be within the sole discretion of the Environmental  
15 Coalition of South Seattle. All such payments shall be made by check made payable and mailed to  
16 the Environmental Coalition of South Seattle, 8201 10th Avenue South, Seattle, Washington  
17 98108, with a copy provided to Plaintiff. Defendant Tacoma Metals' obligation to make these  
18 payments shall not in any way preclude Plaintiff from seeking equitable, injunctive or other relief  
19 to enforce the terms of this Consent Decree, nor from recovering attorney fees incurred in  
20 enforcing the terms of this Consent Decree.

21 11. Within 30 days of the entry of this Consent Decree, Defendant Tacoma Metals,  
22 Inc. shall pay Plaintiff's reasonable attorney fees and costs in the amount of \$116,500 (ONE  
23  
24  
25

1 HUNDRED AND SIXTEEN THOUSAND AND FIVE HUNDRED DOLLARS) by check  
2 payable and mailed to Smith & Lowney, PLLC, 2317 East John St., Seattle, WA 98112, attn:  
3 Knoll Lowney, in full and complete satisfaction of any claims Plaintiff may have under the Clean  
4 Water Act for fees and costs.

5  
6 12. The Court shall retain jurisdiction over this matter and allow this case to be  
7 reopened without filing fee for the purpose of enabling the parties to apply to the Court for any  
8 further order that may be necessary to construe, carry out, enforce compliance and/or resolve any  
9 dispute regarding the terms or conditions of this Consent Decree until termination of the Consent  
10 Decree per paragraph 14. In the event of a dispute regarding implementation of, or compliance  
11 with, this Consent Decree, the parties shall first attempt to informally resolve the dispute through  
12 meetings between the parties by serving written notice of request for resolution to the parties and  
13 their counsel of record. If no resolution is reached within thirty (30) days from the date that the  
14 notice of dispute is served, the parties may resolve the dispute by filing motions with the court. In  
15 the event a motion is made to the Court to enforce the terms of this Consent Decree, the  
16 prevailing party shall be entitled to recover reasonable costs and attorneys' fees incurred in  
17 bringing and maintaining or defending such enforcement action unless manifest injustice would  
18 result. Each party hereto reserves all legal and equitable remedies available to enforce this  
19 Consent Decree, which the parties intend to constitute a legally binding contract, and each party  
20 reserves the right to assert any defenses to any subsequent actions or remedies sought by the  
21 other party to enforce this Consent Decree in the future.

22  
23 13. The parties recognize that no consent judgment can be entered in a Clean Water  
24 Act suit in which the United States is not a party prior to 45 days following the receipt of a copy  
25

1 of the proposed consent judgment by the U.S. Attorney General and the Administrator of the U.S.  
2 EPA pursuant to 33 U.S.C. § 1365(c)(3). Therefore, upon the signing of this Consent Decree by  
3 the parties, Plaintiff shall serve copies of it upon the Administrator of the U.S. EPA and the  
4 Attorney General.

5  
6 14. This Consent Decree shall take effect on the date it is entered by the Court. This  
7 Consent Decree shall terminate sixty (60) days following completion of all obligations under it.

8 15. This Consent Decree may be modified only upon the written consent of the parties  
9 and the approval of the Court.

10  
11 16. If for any reason the Court should decline to approve this Consent Decree in the  
12 form presented, this Consent Decree and the settlement embodied herein shall be voidable at the  
13 sole discretion of either party. The parties agree to continue negotiations in good faith in an  
14 attempt to cure any objection raised by the Court to entry of this Consent Decree.

15  
16 17. Notifications or copies required by this Consent Decree to be made to Plaintiff  
17 shall be mailed to Puget Soundkeeper Alliance, 5309 Shilshole Ave., #215, Seattle, WA 98107.  
18 Notifications required by this Consent Decree to be made to Defendant Tacoma Metals, Inc. shall  
19 be mailed to Tacoma Metals, Inc., 1754 Thorne Road, Tacoma, Washington 98421.

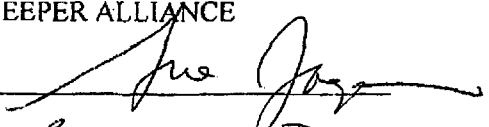
20  
21 Dated and entered this 2<sup>nd</sup> day of December, 2008

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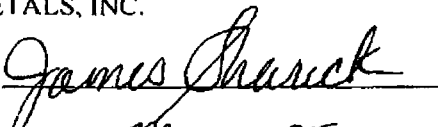
25 ROBERT J. BRYAN  
26 United States District Judge  
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PUGET SOUNDKEEPER ALLIANCE

Signature:   
Title: Executive Director  
Dated: 10/3/08

TACOMA METALS, INC.

Signature:   
Title: Manager  
Dated: Oct. 3<sup>rd</sup> 2008

# Level Three Response Report

Stormwater Permit No. SO3-000682D

April 5, 2008

Tacoma Metals, Inc.

1754 Thorne Road

Tacoma, WA 98421

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prepared by

David T. Johnson P.E.



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## 1. INTRODUCTION

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Tacoma Metals Inc. (TM) operates a metals recycling business, described by Standard Industrial Classification (SIC) code 5093. Approximately 20 employees are present onsite during a single daytime shift, although the number varies over time depending on the quantities of materials requiring processing. Tacoma Metals operates six days per week and is closed on Sunday. Materials to be recycled are brought by members of the public although most material to be recycled is of an industrial nature and arrives by large truck.

Rain falling on the TM site is collected as stormwater and discharged to stormwater conveyance piping owned and operated by the City of Tacoma. Industrial users of property, such as Tacoma Metals, are required to obtain a permit from the Washington State Department of Ecology for discharges of stormwater from their property. Tacoma Metals discharges stormwater under provisions of the current Industrial Stormwater General Permit issued by Ecology. The stormwater being discharged is routinely sampled and analyzed for various constituents required by the permit. Under permit condition S.4.C, Tacoma Metals is required to initiate a Level Three response if any four quarterly samples of stormwater collected after December 31, 2004 are found contain constituents at a concentration which exceeds constituent-specific action levels specified in the permit. A Level Three response, as described in the permit, requires the permittee to investigate all available options to reduce stormwater contaminant levels to or below permit benchmark values. Quarterly stormwater samples collected by Tacoma Metals since December 31, 2004 have exceeded the action levels on more than four occasions.

On June 7, 2007, Tacoma Metals received Ecology Administrative Order No. 4274 which required, as part of corrective action No. 3, that Tacoma Metals submit a Level III Source Control Report to Ecology by April 5, 2008 which would address zinc and copper constituents in the Tacoma Metals stormwater and which would meet the requirements of Washington Administrative Code (WAC) 173-240-130. In response to this compliance order, Stockpot has obtained the services of David T. Johnson Engineering (DTJE) to prepare the Level 3 report for submittal to Ecology. This report has been prepared as a part of the response by Tacoma Metals to the Ecology Order. In addition, this report also describe the Level III response by Tacoma Metals to the lead constituent in its stormwater as well as the total suspended solids and turbidity constituents.

## 2. FACILITY DESCRIPTION

---

Tacoma Metals receives and processes a variety of non-ferrous metals at their 5.1 acre facility located in Tacoma. Figure 2-1 is a site plan of the Tacoma Metals facility. Metal materials are received, sorted, cut, compressed into bales, and stored on site in piles. Stored materials are ultimately shipped offsite to facilities that process the recycled metals for re-manufacturing into new products.

### 2.1 Metals Receiving and Processing

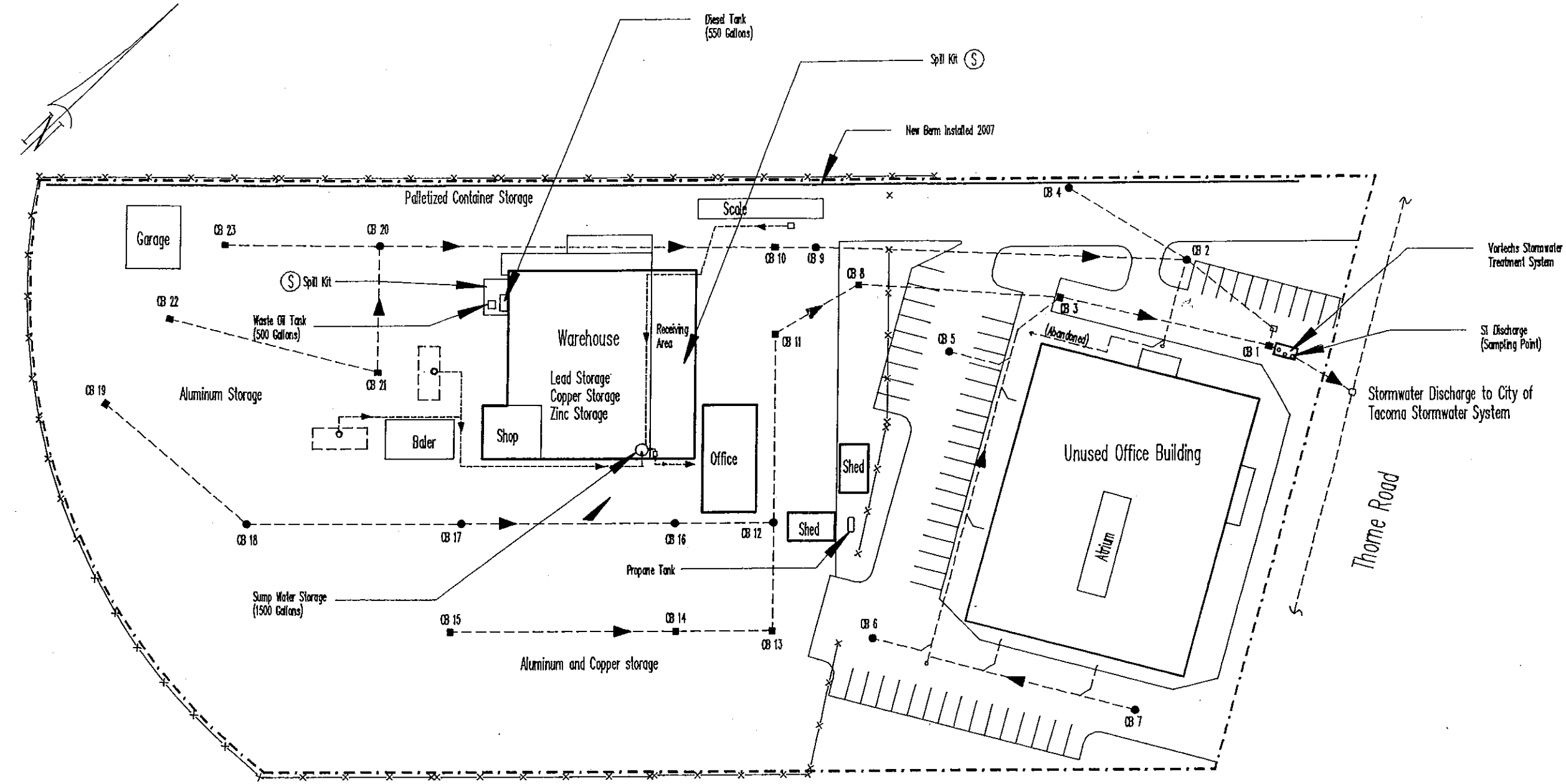
Tacoma Metals is a recycler of non-ferrous metals of all types including aluminum, copper, zinc, and lead. All metals to be recycled are received at the facility by vehicles which enter the facility via a roadway at the northeast corner of the site. Once at the site, the materials are weighed and offloaded for processing. The receiving area for new materials is shown on Figure 2-1. Once the materials are unloaded, they are sorted based on the type of metals that are present. Generally, recycling of metals requires that dissimilar metals first be separated which means that materials that contain two or more different metals must be physically separated into their component metals.

Also, the size and shape of the materials must be changed to increase shipping density and to restructure odd-size objects that might be difficult to transship.

#### 2.1.1 *Stainless Steel*

Stainless steel consists of various alloy mixtures of nickel, chromium, molybdenum, and iron, as well as small amounts of other metals, depending on the particular alloy. Stainless steel is 100 percent recyclable and it is common for new stainless steel objects to contain as much as 25 percent recycled stainless steel. Other metals physically attached to stainless steel objects, such as copper, iron, or zinc, must be physically separated to prevent impurities from contaminating the recyclable content and making the lot of material unmarketable. Long objects, such as piping, must be physically shortened for shipping. At TM, stainless steel is cut with an oxygen-propane cutting torch and then the separated materials are sorted by metal type and placed in bins for shipment.

---



**LEGEND**

Sump Water Line      ————▶—————

Stormwater Drainage Line      - - - -▶- - - -

Property Boundary      - - - - -

FIGURE 2-1  
TACOMA METALS GENERAL SITE PLAN  
1754 THORNE ROAD  
TACOMA, WA 98421

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### *2.1.2 Copper*

Copper metal objects are often combined with other metals which must be physically separated. Large copper objects, such as piping, must be reduced in size for shipping. Copper objects are cut with large hydraulic shears or, when necessary, with a portable handheld circular saw.

### *2.1.3 Aluminum*

Aluminum objects are sorted after receiving and placed in several concrete-lined 'bunkers' for storage until they are processed. Large aluminum objects are reduced in size by cutting with hydraulic shears and are also sawed with portable handheld saws. A large hydraulically operated baler is used at TM to hydraulically compress aluminum into large 'bales' approximately 6 feet square. The location of the baler is shown on Figure 1-1. After compressing the aluminum, the baler wraps the aluminum bales with steel wire to hold them together. The bales are then stacked outside in piles approximately 3 to 4 bales high for storage until they are shipped offsite for recycling.

### *2.1.4 Other metals and materials*

Tacoma Metals also recovers other metals such as lead and zinc. Objects containing these metals are identified during receiving and the metals are removed and stored. Lead is stored indoors in the warehouse until it is shipped offsite. Zinc is stored outside in covered containers. TM also occasionally receives quantities of small electronic devices. These devices are stored and then shipped offsite for processing at an appropriate recycling facility for these kinds of materials.

## **2.2 Metals Storage**

---

Processed metals are stored onsite in bales of like metals. Bales are typically moved and stacked with forklift trucks and arranged around the site depending on the type of metal they contain. Each bale is composed of metal pieces compressed and bent into the bale shape. As a result, bales present a relatively large metal surface area that is exposed to precipitation. Other metals are stored in non-baled piles as well as in open top containers of various types. Approximately two-thirds of the Tacoma Metals site is used for metals storage.

---



Metal objects received at Tacoma Metals are often the discarded remains of large industrial machinery and equipment and can potentially contain surface contamination remaining from previous uses. Exposed metal parts may be covered with deteriorated coatings containing metals that can be mobilized by rainwater impingement and transported into the stormwater collection system. Surface deterioration of the metal surfaces themselves may lead to metal-bearing particulates being mobilized by rainwater and transported into stormwater. The end result of these conditions is the release of small particles containing metals into the stormwater.

Some metals received are the discarded remnants of metal manufacturing or machining processes. Often, liquid coolants and/or lubricants are used during such processes that come into contact with the metals and can be found adhering to discarded remnants that arrive at TM. Typically, coolants are water soluble such that rainwater falling on the metal objects will dissolve the coolant residue and wash it off of the metal part where it will end up in the stormwater. Non-soluble lubricants can be mobilized by rainwater and be washed off of the metal and into the stormwater

### **3. STORMWATER DISCHARGE**

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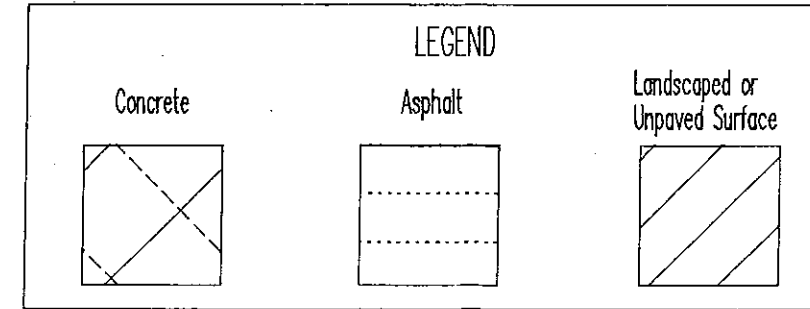
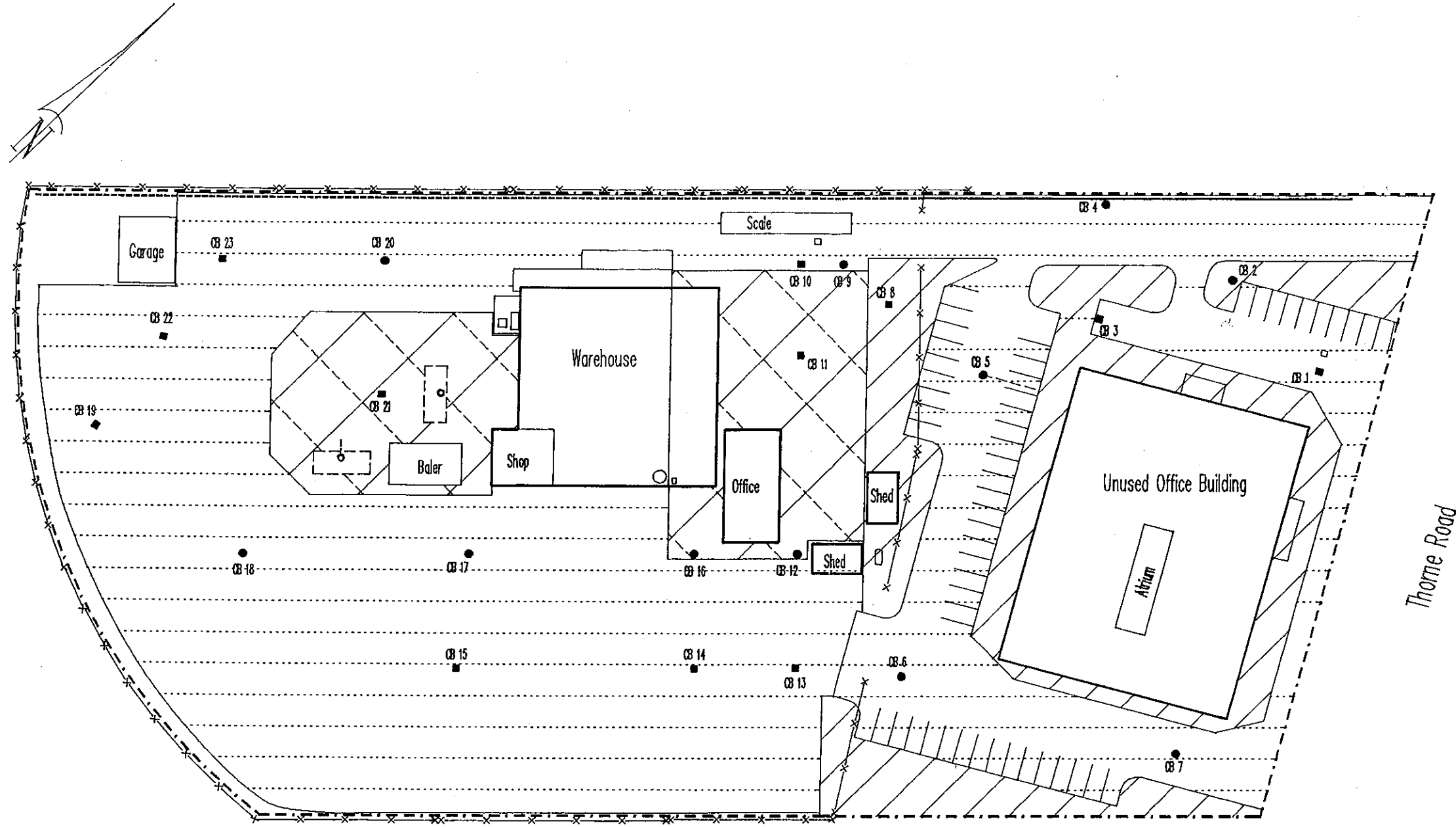
Tacoma Metals occupies an irregularly shaped site with a total size area of about 5.1 acres. The property is flat and is nearly completely covered with impervious surfaces.

#### **3.1 Site Surfaces**

Figure 3-1 shows the various site surfaces found at the site. Two relatively large buildings, a 20,000 sq. ft. single-story unused office building and a 11,500 sq. ft. warehouse are located on the site as well as four much smaller structures. Roof areas are estimated to cover a total of 36,500 sq. ft. or 0.84 acres. Asphalt and concrete surfaces cover 3.65 acres and the remaining 0.67 acres of the site are covered with unpaved areas and mature landscaping.

#### **3.2 Stormwater Collection System**

A system of stormwater collection piping and catch basins collects essentially all of the stormwater runoff from the site and conveys it to the discharge point. Essentially all of the metal storage areas are covered with impervious surface and underlain with stormwater collection piping. As a result, rain coming in contact with stored metals generally falls within a short distance of a nearby catch basin which provides an entry point for runoff to enter the collection system. The rain falling on the site surfaces accumulates as surface stormwater runoff that is collected in a system of 23 buried underground drain catch basins and connecting piping as shown on Figure 2-1. The buried piping conveys the stormwater to the northern corner of the site where a buried underground 'Vortechs' vault structure is located which provides treatment of the stormwater to remove suspended solids.



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**FIGURE 3-1**  
**TACOMA METALS SITE SURFACES**  
1754 THORNE ROAD  
TACOMA, WA 98421

### 3.3 Vortech Stormwater Treatment System

The Vortechs system was installed in 1999 at the time that Tacoma Metals moved onto its present location. The system configuration is based on a 1998 U.S. Patent No. 5,759,415 for removing non-floating particulate solids and floating oils from influent water using a single containment system. The general idea is that influent water tangentially enters a circular compartment which causes it to swirl around the compartment. The swirling motion is intended to enhance the settling of the non-floating particulates by creating a centrifugal acceleration on them towards the walls of the circular compartment. Solids fall towards the sides and bottom of the circular compartment and are collected there for later removal. The water from which the non-floating solids have been removed then flows through a weir cut into the side of the compartment that sets the water level based on the influent flowrate. Water that overflows the weir flows to a second compartment where it then underflows a baffle which causes floating materials to be retained behind the baffle.

The Vortechs system has the theoretical potential to remove small particulate contaminants from the Tacoma Metals stormwater as well as floating oils. In practice, however, the Vortechs system does not provide sufficient time for particulates to be removed from the water by settling before the water exits the settling chamber. The circular compartment has a volume of only about 850 gallons which results in a residence time of only 8 minutes at an influent flowrate of 100 gpm. The linear velocity of the swirling motion imparted to the stormwater at a 100 gpm influent is only about 2 ft/sec which would result in a centripetal acceleration of only about 5 percent of the acceleration of gravity which is insufficient to significantly increase movement of particulates to the sides and bottom of the circular compartment. The Vortechs system does provide an underflow baffle, though, which retains floating oils, but that is its only significant stormwater treatment effect at Tacoma Metals in its current configuration.

The Washington State Department of Ecology has issued a General Use Level Designation (GULD) for the Vortechs system approving it for pretreatment use at a loading of up to 35 gpm per sq. ft. of grit chamber surface area. Based on this loading, the Vortechs 4000 system at Tacoma Metals would be suitable for an influent flowrate of 2.2 cfs or 987 gallons per minute. The GULD lists as a finding of fact that the Vortechs system achieved an 80 percent removal of sieved sand particles in the 38 to 75 micron size range and a 40 percent removal of ground silica particles with a mean particle size of 20 microns. The Ecology GULD document for the Vortechs unit is included in Appendix D.

## 4. STORMWATER CHARACTERIZATION

The following describes the quantity constituents, and properties found in the stormwater collected at the Tacoma Metals site.

### 4.1 Sampling Data

Stormwater has been sampled periodically at Tacoma Metals as a permit requirement. Recent sampling results are summarized in Table 4-1.

**Table 4-1. Recent Stormwater Compliance Sampling Results**

Sampling Date	Units	Benchmark Value	Action Level	Q1 2007 03/19/07	Q2 2007 06/15/07	Q3 2007 08/21/07	Q4 2007 10/24/07	Q1 2008 03/03/08	Q1 2008 03/13/08
Parameter									
pH		6 - 9	5 - 10	7.12	7.2	7.08	6.9	6.96	6.99
Total Oil and Grease	mg/l	15	30	16	8.3	10	2.5	7	19
Total Suspended Solids	mg/l	30	-	120	120	55	42	180	67
Turbidity	NTU	25	50	100	160	70	23	410	88
Hardness	mg/l	-	-	800	970	96	890	380	120
Copper	ug/l	63.6	149	400	528	563	226	844	524
Lead	ug/l	81.6	159	330	260	420	190	790	330
Zinc	ug/l	117	372	479	496	622	172	780	551

### 4.2 Other Sampling Data

A particle size distribution analysis was performed on a sample of stormwater collected at Tacoma Metals on March 3, 2008. The test procedure was to filter particles out of the stormwater using a 0.45 micron filter and then microscopically examine the retained particles and count the number of particles in each size range from a representative sample. The results are summarized in Table 4-2 and found that 99 percent of the particles were smaller than 50 microns in size with 30.6 percent smaller than 5 microns in size.

**Table 4-2. Stormwater Particle Size Distribution**

Particle Size Distribution	Percent
0.5 - 5 microns	30.6
6 - 15 microns	50
16 - 25 microns	18.2
26 - 50 microns	0.3
> 50 microns	0.9
Total Particulates (#/L)	170,000,000

A settling test was also performed on the stormwater sample. The test procedure was to place a sample in an Imhof settling cone and withdraw a 15 ml pipetted sample from the top 5 mm of the liquid sample after the sample had been allowed to settle for specified time periods. The 15 ml sample was then analyzed for total copper, lead, and zinc content. Tests were done for 0, 2, 4, and 8 hours and are summarized in Table 4-3. Among other things, these results provide an indication of the maximum amount of metals removal due to settling which might be expected due to settling.

**Table 4-3. Stormwater Settling Rate**

	Settling Time, hr				% Reduct.
	0	2	4	8	
Copper, mg/l	0.844	0.681	0.4	0.374	56%
Lead, mg/l	0.79	0.78	0.36	0.32	59%
Zinc, mg/l	0.78	0.7	0.395	0.375	52%

### 4.3 Stormwater Quantity

The quantity and release rate of stormwater that is collected and released from the Tacoma Metals site is determined by the amount of precipitation occurring, by the intensity of the precipitation over the time of a storm, and by the imperviousness of the site surface areas.

#### 4.3.1 Annual Stormwater Volume

The mean annual precipitation for Tacoma is listed in the Ecology Stormwater Management Manual for Western Washington to be 36.92 inches per year. This would result in approximately 5 million gallons of stormwater collected annually at the TM site, if the effect of evaporation is not considered.

#### **4.3.2 Stormwater Design Flowrate**

Design criteria in Section 2.3.1 of the current Ecology Stormwater Management Manual for Western Washington require that a wetpool treatment facility be sized to treat a 6-month, 24-hour design storm. The manual allows such a facility to be sized to treat 91 percent of the 24-hour runoff volume expected from the design storm as indicated by an approved continuous runoff mathematical model. Ecology provides an approved model in their Western Washington Hydrology Model (WWHM) computer software. This software was used to model the Tacoma Metals site. The Water Quality Design Flow Rate, using the WWHM v2 model, was determined to be 0.4 cfs (180 gpm) for a 15-minute time increment flow rate. Ecology has requested, however, that the design flowrate be determined based on treating a 2-yr, 24-hr design storm and that detention capacity be utilized to accommodate this. Incorporating this requirement together with storage capacity results in a design flowrate of 200 gpm. The modeling output is included in Appendix C and is described further in Section 6.

## 5. LEVEL THREE RESPONSE ACTIONS

---

The Level Three Response requires that the permittee:

- Identify the potential sources of stormwater contamination that causing or contributing to the presence of the benchmark parameter
- Investigate all available options of source control, operational control, and stormwater treatment best management practices to reduce stormwater contaminant levels to or below permit benchmark values

### 5.1 Potential Sources of Stormwater Contamination

The Tacoma Metals has large quantities of non-ferrous metals stored throughout its site. At a storage density of 300 pounds per sq. ft. for approximately half of the site, there would be an estimated 16,000 tons of metals in storage at any given time with hundreds of tons of metals arriving and leaving the site every day. Metals are received, processed, placed into storage, and then sold and shipped offsite when market conditions and buyers dictate. Stored metals are exposed to rainwater which becomes contaminated as a result of surface contamination of the metals due to their prior use, anti-corrosion coatings, and corrosion of the base metal.

#### 5.1.1 Metal Surface Contamination

Received metals originate from an extremely wide variety of commercial and industrial uses. Dust and accumulated grime from years of use are often present as a result of the normal use of the metal-bearing object. When rain falls on these materials, some of the grime and dust particles are transferred to the rainwater. There is no facility at Tacoma Metals to wash incoming metals and such a washing process does not appear to be feasible due to the difficulty of cleaning scrap objects with irregular complex shapes and the degree of effort that would be required for relatively low-value commodity materials which are sold on a price per pound. Additionally, a washing facility would generate a large amount of wash water which would require treatment and disposal offsite. Many of the objects received at Tacoma Metals have some sort of anti-corrosion coating or surface treatment applied. This coating or surface treatment has often began to fail due to the age of the original object, mechanical handling, or corrosive attack. As the coating or surface treatment fails, the underlying metal is exposed to further corrosion and the coating or surface treatment itself becomes part of the stormwater particulate burden when rain contacts the object during storage.



### 5.1.2 Base Metal Corrosion

Corrosion of base metals stored at Tacoma Metals can potentially contaminate rainwater falling on the object. The Tacoma Metals stormwater permit requires them to sample and analyze their stormwater for copper, lead, and zinc constituents. All three of these metals are stored in large quantities at Tacoma Metals and can become exposed to stormwater.

#### 5.1.2.1 Copper

Copper is received as scrap piping, wire, electrical equipment, various other objects as well as bronze and brass scrap materials. All of these materials have elemental, non-oxidized copper, however older copper-containing materials may arrive with surface corrosion on the metallic copper surfaces with its characteristic green to blue color. The oxidized copper is in the cupric +2 oxidation state and forms a variety of compounds which can leave the surface of the copper and be present in stormwater. The most important of these are probably cupric oxide and cupric carbonate which are both normally insoluble in stormwater. The process of oxidization and precipitation of these compounds and others results in the formation of small particles which can wash off of the originating object and transfer to stormwater as part of its particulate burden.

#### 5.1.2.2 Lead

Lead metal objects are received at Tacoma Metals, often as a component of objects which contain several metals which must be separated prior to recycling. Lead is commonly used in large batteries but Tacoma Metals does not accept batteries for recycling at the present time so lead batteries are not present at Tacoma Metals. Metallic lead is separated and stored onsite until a sufficient quantity is available to sell offsite. In addition, lead is very widely used in anti-corrosion coatings and as a colorant additive. Lead is also present in many other metal alloys such as bronze, brass, and soldering materials for piping. When exposed to air, metallic lead oxidizes and forms a thin surface layer of one of several possible forms of oxide. Generally, most oxides of lead are insoluble in stormwater but the small particles of oxide which form can mobilize and become part of the stormwater particulate burden. As time passes, lead oxides on the surface of metallic lead can slowly change to a carbonate form which is more soluble in stormwater with a low hardness. Generally, stormwater at Tacoma Metals has had high to very high hardness, probably as a result of other materials onsite, which protects against dissolving lead into the water. As a result, lead is found in stormwater metals in a particulate form.

### 5.1.2.3 Zinc

Zinc is widely used in various types of corrosion protection applications. Sacrificial anodes constructed of metallic zinc are used in marine and industrial applications to prevent corrosion of a protected component by electrically connecting zinc with an iron-based metal object. In the presence of water, the zinc anode loses electrons and dissolves into solution, thereby protecting the iron-based object from corrosion. Other uses of zinc are as a surface corrosion protection for steel objects. When exposed to air, the zinc oxidizes and becomes coated with a coating of zinc carbonate which protects it against further corrosion. Steel objects with a zinc coating are referred to as 'galvanized' and are commonly used for fences, roofing materials, piping materials, outdoor steel objects, etc. Tacoma Metals has both galvanized materials present onsite in roofing and fencing products and also has zinc scrap materials and galvanized scrap materials stored onsite. Zinc carbonate found on metallic zinc surfaces is somewhat soluble in stormwater and can contribute to dissolved zinc ions in stormwater.

## 5.2 Effect of Contamination on Benchmark Parameters

Tacoma Metals has had difficulty meeting the stormwater benchmark parameters for copper, lead, zinc, suspended solids, and turbidity. Table 4-1 summarizes recent sampling results.

### 5.2.1 Turbidity and TSS

Generally, total suspended solids (TSS) and turbidity in Tacoma Metals stormwater are related with high levels of suspended solids indicating a related increase in turbidity. When Tacoma Metals stormwater is allowed to stand in a container, suspended solids settle to the bottom of the container and the turbidity of the supernatant water decreases dramatically to the approximate turbidity appearance of tap water. Suspended solids originate in stormwater as described above. The benchmark standards for turbidity and suspended solids appear to be set sufficiently low that stormwater contaminated at a site with large amounts of metal materials exposed to rain will be unable to achieve them on a routine basis.

---

### 5.2.2 Copper, Lead, and Zinc Metals

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Copper, Lead and Zinc metals at Tacoma Metals all appear to originate from contamination of stormwater resulting from the contact of stormwater with stored metals. There do not appear to be any chemical or other uses of these materials at Tacoma Metals. The amount of contamination present in the stormwater is likely related to the amount and intensity of precipitation, the length of time that the metals have been exposed to rain, the general condition of the exposed materials, and the type and mix of metals exposed during a particular storm event. The benchmark standards for copper, lead, and zinc appear to be set sufficiently low that stormwater

---

contaminated at a site with large amounts of metal materials exposed to rain will be unable to achieve them on a routine basis.

### 5.3 Investigate All Available Options

The level three response requires the permittee to investigate all available options of source control, operational control, and stormwater treatment best management practices to reduce stormwater contaminant levels to or below permit benchmark values. The investigation and evaluation of options is described below.

#### 5.3.1 *Source Control*

Once rain comes in contact with large quantities of exposed metal materials, such as would occur in the yard of a metal recycler, it is impossible to prevent the stormwater from becoming contaminated. Tacoma Metals has implemented source control methods in which increased housekeeping measures are employed to keep exposed pavement swept and clear of obvious contamination. Unfortunately, the particulates being released by the metals are much smaller than can be removed with normal housekeeping measures. As shown in Table 4-2, essentially all of the particles found in the Tacoma Metals stormwater are smaller than 50 microns in diameter, or smaller than one-half of the width of a human hair. More significantly, the exposed pavement areas represent only a very small portion of the surface area exposed to rainwater as most of the surface area is on the metals themselves as well as on the pavement areas lying beneath metal piles. As a result, the only source control measures which are likely to be effective are those which prevent rain from coming in contact with exposed metal materials.

##### 5.3.1.1 **Covering Storage Piles**

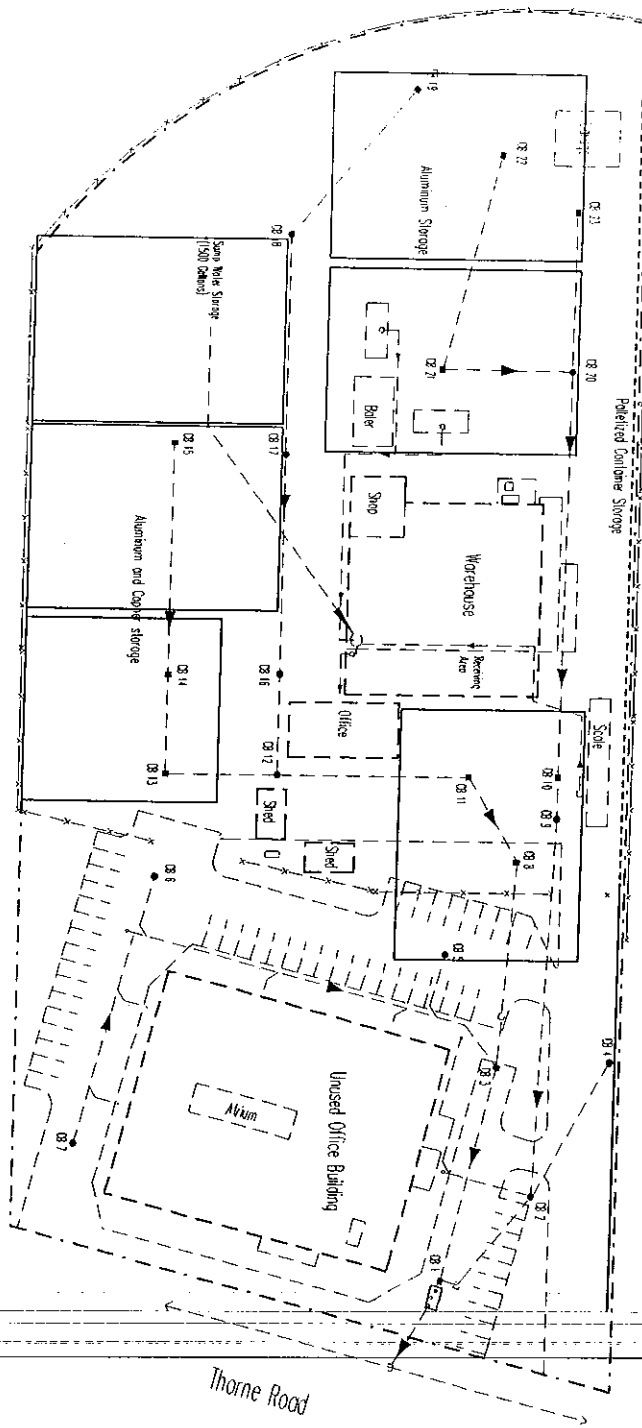
Tacoma Metals has attempted to use a variety of tarps and plastic sheeting to cover storage materials. While obvious and simple in concept, using these in practice is extremely difficult. Spreading and securing large tarps is difficult and the sharp edges of metal storage pile objects tend to cut any cover material. Once spread, the cover materials are subject to wind exposure which requires a lot of hold downs on exposed storage piles. Finally, the cover material must be removed and stored when access to a covered storage pile is required. While simple in practice, using such devices in practice is so difficult and impractical as to be infeasible for an active metal recycling yard. Tacoma Metals continues to apply plastic covers to small containers containing metal turnings with hydrocarbon contamination but the effect of these on preventing exposure of significant amounts of stored materials at Tacoma Metals to rain is insignificant.

### 5.3.1.2 Constructing Additional Warehouse Storage

An alternative for preventing rain exposure would be to construct a new large warehouse covering the active site. A warehouse of approximately 150,000 sq. ft. could be constructed for approximately \$50 per sq. ft. which would cost approximately \$7.5 million. Other than the cost, there are other major drawbacks to such an option. First, the metal recycling business requires moving large quantities of metal scrap materials around. Moving such materials inside a large warehouse would expose internal support columns to potentially-shifting metal piles which would require a significant clearance around each internal support column. Next, such a warehouse would have a clear height of only about 20 to 25 feet which would limit stacking of materials. Finally, all vehicle unloading, loading, and scale operations would have to be outside of the building where contamination of stormwater would still occur from the roadways and handling areas but would be reduced by perhaps 80 percent.

### 5.3.1.3 Fabric Covered Storage Sheds

'Clearspan' fabric covered buildings are available in standard widths of up to 100 feet. Advantages to these building are relatively low cost, higher clear height of up to 30 feet due to the lightweight 'truss' design of the fabric-covered roof support. A disadvantage would be the exposure of a lightweight structure to metal handling and storage piles. Generally, these types of structures are used for covered storage, agricultural storage, or light manufacturing. Figure 5-1 shows an arrangement of six new fabric-covered structures located around the existing structures. A total of 80,000 sq. ft. would be covered by the new structures. The estimated cost to construct the new structures would be approximately \$500,000. There would also be an annual cost of approximately \$4,000 for electricity for lighting in the new structures. The new structures would cover an additional 1.8 acres of the site but would still leave about 1.85 acres of storage and traffic areas uncovered. Based on exposed surface area, it's estimated that this option would reduce stormwater contamination by about 50 percent.



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FIGURE 5-1  
NEW FABRIC-COVERED STORAGE STRUCTURES  
TACOMA METALS INC.

### 5.3.2 Operational Control

Operational controls are management practices that can be followed to prevent and reduce stormwater contamination. No new operational controls are identified that would have any effect on stormwater contamination.

### 5.3.3 Stormwater Treatment

Stormwater treatment would remove the particulate contaminants described earlier from the collected stormwater before it is released offsite. As described in Section 3.3, Tacoma Metals has an existing stormwater treatment system but it has failed to remove the amount of contaminants necessary to achieve the benchmark levels in the current permit. In addition, Ecology Administrative Order No. 4274 required Tacoma Metals to begin using filter fabric inserts in every catch basin. The inserts allow stormwater to pass through but use a simple cloth filtering approach to remove solids from the stormwater as it passes through the insert material. In practice, the particles in the Tacoma Metals stormwater are too small to be removed in significant amounts by a coarse filtration device like the catch basin inserts. The inserts do retain some relatively coarse solids that would probably otherwise accumulate in the catch basin bottoms, collection piping, and Vortechs 'grit' chamber. Several stormwater treatment options are considered below.

#### 5.3.3.1 Sedimentation Wet Vault

A sedimentation vault would provide quiescent conditions where solids could settle from the stormwater before it is released. Over time, solids would accumulate in the bottom of the vault and would need to be removed at periodic intervals. The ability of the vault to remove particulates would depend on the settling rate of the particles and the length of time that the stormwater was present in the vault. Constructing a 10 x 100 foot vault with a depth of 4 feet would cost approximately \$100,000 based on a cost of \$600 per foot of length and an excavation and installation cost of \$40,000. Such a vault would be estimated to remove approximately 8 percent of the metal particulates based on applying a simple EPA methodology (EPA, 1986) and the settling rates listed in Table 4-3.

#### 5.3.3.2 Stormwater Filtering Devices

Several companies sell devices to remove particulates from stormwater using filtration media installed in a treatment vault or tank. The drawback to these devices is that the filtration media is not reusable and must be removed, discarded, and replaced when the throughput has decreased to the changeout point. If the filter media becomes

obstructed and is not renewed, the devices have an overflow channel to bypass the stormwater around the filter media. While this will keep the device in operation, it will not provide the necessary removal until the filter media is replaced. Generally, if the filtration media is sufficiently fine to remove the small particles found in the Tacoma Metals stormwater, as listed in Table 4-2, then it will be likely to become obstructed to flow and require replacement. Approximately 80 percent of the particles in the Tacoma Metals stormwater were found to be 15 microns or smaller in size. Generally, any disposable filter media that will effectively remove 15 micron and smaller particles from water tends to be relatively expensive and is not likely to be a good option for filtering wastewater.

### 5.3.3.3 Stormwater Chemical Treatment

Stormwater chemical treatment is used to increase the particle size sufficiently to increase the settling rate and make settling an effective method of removing particulate from stormwater. Ecology has approved chemical treatment BMP for construction sites (BMP C250) in which the Vanson chitosan polymer is added to construction site runoff as a flocculating aid to clarify the runoff. This polymer was tested with Tacoma Metals stormwater as a flocculating aid and did not provide significant benefits. Another form of chemical treatment is the use of a coagulant. The most common coagulant used in water treatment worldwide is the ferric ion. Ferric ion is a powerful coagulant for certain types of particles and is capable of coagulating small particulates to form a dense, settleable floc. Ferric ion is usually added by adding ferric chloride or ferric sulfate to the water to be treated. The ferric solutions are somewhat acidic and lower the pH of the water being treated. As a result, some sort of base must be added to the water to maintain a neutral pH. Ferric chloride has been used as a stormwater treatment coagulant at other metal recycling facilities (Minton, 2002). In addition, this engineer successfully used a ferric chloride treatment system during a 3-year period to treat stormwater collected at a metal recycling facility located in Tacoma, Washington that was undergoing site remediation while continuing operation. The system successfully operated to meet all Substantive Requirements (Ecology, 1992) established by Ecology during the three-year period of operation.

Ferric chloride was tested as a coagulant for the Tacoma Metals stormwater and was found to provide good results at a 50 ppm dosage. Sodium hydroxide was added to maintain the pH at a neutral level. Water treated with ferric chloride was sampled and analyzed for constituents. Table 5-1 provides a summary of the sampling results.

Coagulation with ferric ion has also been found to successfully remove dissolved organic carbon molecules (Sinsabaugh, 1986). Metal turnings arrive at Tacoma Metals contaminated with water soluble hydrocarbon-based machining solutions that can migrate to stormwater if exposed to rain.

**Table 5-1. Summary of Treated Stormwater Analytical Results**

Parameter	Units	Benchmark Value	Action Level	6/3/08 Stormwater Sample				
				Untreated	Treated with FeCl <sub>3</sub>	Red., %	Treated after Coprecipitation	Red., %
pH		6 - 9	5 - 10	6.7	6.89		-	
Total Oil and Grease	mg/l	15	30	24	8.2	66%	-	-
Total Petroleum Hyd.	mg/l	-	-	-	5.6	-	-	-
Polar Hyd (by difference)		-	-	-	2.6	-	-	-
Total Suspended Solids	mg/l	30	-	120	6	95%	-	-
Turbidity	NTU	25	50	6.6	3.9	41%	-	-
Hardness	mg/l	-	-	290	280		-	-
Copper	ug/l	63.6	149	808	91	89%	37	95%
Lead	ug/l	81.6	159	570	20	96%	< 10	98%
Zinc	ug/l	117	372	1140	441	61%	91	92%

Treated stormwater was evaluated for both Total Oil and Grease and Total Petroleum Hydrocarbons as a method of quantifying the presence of polar hydrocarbons. The treated stormwater was found to have 2.6 ppm of polar hydrocarbons and a 66 percent reduction in total oil and grease using the normal methodology of EPA Method 1664. This indicates that the chemical coagulation system will also remove organic compounds potentially present in Tacoma Metals stormwater.

Zinc levels are still above the action levels in the treated water, due to the presence of dissolved zinc. The zinc concentration in the untreated stormwater was unusually high, compared with historical levels, but nevertheless, high influent zinc levels appear to be a possibility. Removal of dissolved metals can be accomplished with ion exchange or adsorptive media but using those processes for TM stormwater would require extensive pretreatment of the water to remove suspended solids. Moreover, these types of media are relatively expensive and, in the case of adsorptive media, could not be reused and would require disposal as a toxic waste. A widely used innovative process to address these difficulties for industrial wastewater with metals is a process called coprecipitation developed by Unipure. In this process, ferrous ion is added to the water where it forms a soluble chain-like structure in solution due to the weak ionic attractions between molecules with iron in close association with other dissolved metals. At this point the water is introduced into a tank where base is added to adjust the pH and a small amount of air is sparged in to oxidize the ferrous ions to the ferric form which then drops out of solution. As the iron drops out of solution, it incorporates the heavy metals in a dense iron matrix as it forms. The metals are "occluded" in the iron solids due to their close association with the iron prior to its



precipitation. This phenomenon makes it possible to remove heavy metals from water to concentrations well below their thermodynamic solubility limits, which is particularly important for the relatively soluble zinc. Table 5-1 summarizes the results of testing with coprecipitation which reduced zinc levels by 92 percent.

A ferrous chloride treatment system as described further in Section 6 is estimated to cost approximately 150,000. In addition, there would be operating costs for ferrous chloride and caustic soda usage, as well as potential sludge disposal costs. No consideration is made for sludge disposal costs as the copper content of the sludge may allow it to be sold as a recycled material for metals recovery. This cannot be predicted, however, with the information currently available.

#### 5.4 Comparison of Response Alternatives

The alternatives considered above were evaluated for cost and effectiveness and ranked based on the cost per pound of total suspended solids removed. The chemical treatment alternative was the most attractive of the alternatives. The results of the analysis are summarized in Table 5-2.

**Table 5-2. Comparison of Response Alternatives.**

Name	Effective ness	Pounds Removed	Capital Cost, \$	Ammortized Cap. Cost, \$/yr	Yearly Operating Cost, \$	Total Annual Cost, \$	Cost \$/lb TSS Removed
New Warehouse	80%	3220	7,500,000	601,819	6,000	607,819	189
Fabric Storage Structures	50%	2013	722,088	57,942	4,000	61,942	31
Wet Vault	8%	322	100,000	8,024	0	8,024	25
Chemical Treatment	95%	3824	150,000	12,036	3,170	15,206	4

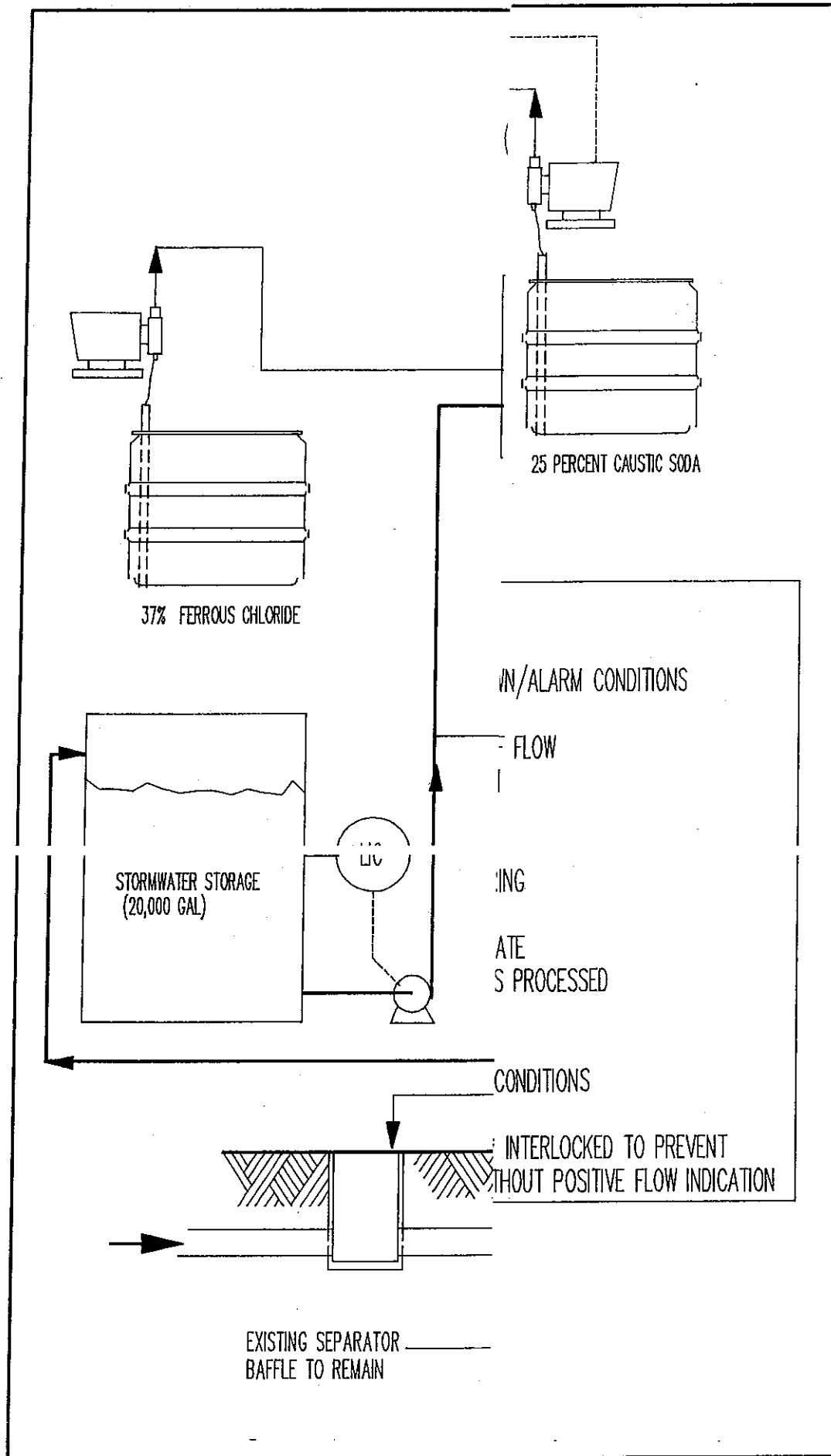
5,000,000  
97

Assumptions:  
 Annual Volume Treated, gal  
 Base TSS level, mg/l  
 Amortization 20 yrs @ 5% discount

## 6. PROPOSED RESPONSE ACTION

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Chemical treatment of the stormwater is the proposed response alternative. A simplified process flow diagram for the proposed system is shown in Figure 6-1. Generally, a new stormwater storage tank, above-ground inclined-plate clarifier, Unipure coprecipitation tank, and sludge tank would be located near the existing underground Vortechs system. The proposed system would treat 93 percent of the stormwater from a 2-year/24-hr storm as described in current Ecology stormwater manual guidance. The Ecology WWHM2 model (and other current stormwater modeling software) cannot be used to model the proposed stormwater treatment system, and its storage capacity, with a constant pumped treatment flowrate. As a result, 24-hr design storm hyetograph values from the SCS, resolved to 10-minute time intervals, were used to model the operation and determine the best combination of treatment capacity, detention volume, pumping transfer rate. The results from this modeling are included in Appendix C. Generally, this modeling establishes that a treatment system throughput of 200 gpm and a detention tank capacity of 20,000 gallons is the optimal configuration for treating a 2-yr/24-hr storm of 1.61 inches of precipitation.



NO SCALE		<p>FIGURE 6-1</p> <p>CONCEPTUAL PROCESS FLOW DIAGRAM</p> <p>REVISED STORMWATER TREATMENT SYSTEM</p> <p>TACOMA METALS INC.</p>	
H0037-6-1		<p>David T. Johnson Engineering</p> <p>Chemical Engineering - Water Treatment - Waste Processing</p> <p>17371 NE 67th Court, Suite 217, Redmond, WA 98052</p> <p>TEL: (425) 883-6033 FAX: (425) 556-9547</p>	
DRAWN: DTJ		DATE: 23 JUNE 2008	

Two new 175 gpm submersible pumps would be installed in the existing Vortechs vault. A level switch would activate one, and then two, pumps as the level rose due to a precipitation event. It is expected that for most precipitation events, only one pump would be required. Under this arrangement, the second pump would also function as a backup pump in the event of failure of the primary pump. The stormwater would be pumped to the stormwater storage tank where a 200 gpm treatment system feed pump would pump the stormwater to the Unipure reactor tank under level control. Ferrous chloride solution and air would be added to the Unipure tank where the ferrous chloride would then oxidize and coagulate suspended solids as well as remove dissolved metals. Sodium hydroxide would be added to the Unipure tank under pH control to maintain the desired pH. The reacted solution would then flow by gravity to a flocculation tank on a lamella-plate clarifier where a small amount of polymer would be added to flocculate the solids for optimal solids/liquid separation. Based on testing, it is anticipated that approximately 4 grams of neat polymer would be required to flocculate 1,000 gallons of treated stormwater. Almost all of this small amount of polymer would be retained with the settled solids and contained in the sludge tank.

The treated stormwater with flocculated solids would flow through the clarifier where the solids would settle and clarified water would overflow by gravity to the stormwater discharge at the existing Vortechs unit. A second pH effluent monitor would be installed on the return flow to verify the proper operation of the system and to provide a shutdown indication in the event of failure.

Use of the proposed chemical treatment system will require written approval from the Washington State Department of Ecology. It cannot be predicted, with the information available, if such approval will be forthcoming. Upon receipt of written approval of the conceptual plans, detailed plans and specifications will be submitted to Ecology and installation will proceed.

## 8. SCHEDULE

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The modifications to the pretreatment system will be implemented on the schedule below. The schedule intervals will begin upon notification of the approval of the proposed system described in this Engineering Report by Ecology.

4 weeks	Plans and Specifications to Ecology
10 weeks	Procure Equipment
4 weeks	Install Equipment and piping revisions
2 weeks	Startup and Testing
22 weeks	<b>TOTAL</b>

## **9. COMPLIANCE**

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### **9.1 Professional Engineering Assessment**

This report has been prepared by David T. Johnson, a registered professional engineer licensed to practice in the State of Washington in accordance with chapter 18.43 RCW. The stormwater treatment system described here will incorporate the technologies of coprecipitation with ferrous chloride, coagulation with ferric chloride, flocculation, and pH neutralization using sodium hydroxide and additional gravity settling of contaminants. These chemicals are commonly used for this purpose and are effective when applied under the control of equipment suitable for the purpose that is maintained in good working order. It is the opinion of this engineer that the implementation of these technologies, as described in Section 6 of this report, will be sufficient to allow the treated stormwater from the proposed system to meet all current applicable permit action and benchmark levels. Further, the proposed system will provide BAT/AKART treatment for the contaminants currently found in stormwater collected at the Tacoma Metals site and will be one of the most effective stormwater treatment system ever installed in the State of Washington.

### **9.2 System Ownership**

Tacoma Metals will own, operate, and maintain the stormwater treatment system additions described in this report after construction is complete.

### **9.3 Compliance with Water Quality Management Plans**

All effluent from the stormwater treatment system will be discharged under the current stormwater permit held by Tacoma Metals. The discharge volume and discharge rate will not change as a result of the installation of this system.

### **9.4 SEPA/NEPA Compliance**

The State Environmental Protection Act (SEPA) rules set forth in WAC 197-11-310 require that a threshold determination be made for any proposal which meets the definition of action and is not categorically exempt. The stormwater treatment system proposed will provide additional supplemental stormwater treatment for an existing

## **11. APPENDIX A - PRODUCT MATERIAL SAFETY DATA SHEETS**

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Ferrous Chloride 37 Percent  
Sodium Hydroxide 25 percent  
Nalco 7768 Polymer

## Material Safety Data Sheet

Revision Issued: 4/03/2006

Supersedes: 2/23/1998

First Issued: 11/14/1997

### Section I - Chemical Product And Company Identification

**Product Name: Ferrous Chloride Solution**

CAS Number: N/A

HBCC MSDS No. CF02000



**HILL BROTHERS** *Chemical Co.*

1675 NORTHMAIN STREET • ORANGE, CALIFORNIA 92867-3499  
(714) 998-8800 • FAX: (714) 998-8310  
<http://hillbrothers.com>

1675 No. Main Street, Orange, California 92867

Telephone No: 714-998-8800 | Outside Calif: 800-821-7234 | Chemtrec: 800-424-9300

### Section II - Composition/Information On Ingredients

Chemical Name	CAS Number	%	Exposure Limits (TWAs) in Air		
			ACGIH TLV	OSHA PEL	STEL
Ferrous Chloride	7758943	< 37	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	N/A
Magnesium Chloride	7786303	< 4	N/A	N/A	N/A
Ferric Chloride	7705080	< 1	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	N/A
Hydrochloric Acid	7647010	< 1	7 mg/m <sup>3</sup>	7.5 mg/m <sup>3</sup>	N/A

### Section III - Hazard Identification

**Routes of Exposure:** Skin contact, inhalation of mist, ingestion.

#### Summary of Acute Health Hazards

**Ingestion:** Accidental ingestion may cause gastrointestinal irritation, nausea and vomiting.

**Inhalation:** May be irritating to mucous membranes.

**Skin:** May be irritating to the skin.

**Eyes:** May be irritating to the eyes.

**Summary of Chronic Health Hazards:** N/A

**Signs and Symptoms of Exposure:** N/A

**Effects of Overexposure:** Irritating to skin, eyes, and mucous membranes. Accidental ingestion may cause gastrointestinal irritation, nausea and vomiting.

**Medical Conditions Generally Aggravated by Exposure:** N/A

**Note to Physicians:** N/A

### Section IV - First Aid Measures

**Ingestion: Do Not Induce Vomiting** - Dilute slowly with 1-2 glasses of milk or water.  
SEEK MEDICAL ATTENTION IMMEDIATELY.



**Inhalation:** If inhaled in large amounts, move exposed person to fresh air. Administer artificial respiration if necessary. Have qualified medical personnel administer oxygen.

**Skin:** Immediately remove contaminated clothing. Wash off in flowing water or shower then with soap and water. Contact a physician if irritation continues.

**Eyes:** Immediate and continuous flushing with flowing water for at least 15 minutes. Prompt medical consultation is essential.

#### Section V - Fire Fighting Measures

**Flash Point:** N/A

**Autoignition Temperature:** N/A

**Lower Explosive Limit:** N/A

**Upper Explosive Limit:** N/A

**Unusual Fire and Explosion Hazards:** Thermal Decomposition can produce  $\text{FeCl}_3$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{HCl}$ , or  $\text{Cl}_2$ .

**Extinguishing Media:** N/A

**Special Firefighting Procedures:** Wear self-contained breathing apparatus.

#### Section VI - Accidental Release Measures

Ferrous Chloride is listed as Class B under the Superfund laws. Spills of Ferrous Chloride in excess of 100 lbs. (30 gallons of 30%) must be reported under CERCLA. Wear self-contained breathing apparatus and chemical splash suit in emergency situations. Dike and contain spill. Do not let ferrous chloride get into sewer system. Use proper absorbents.

#### Section VII - Handling and Storage

Corrosive to many metals, do not store in metal containers.

#### Section VIII - Exposure Controls/Personal Protection

**Respiratory Protection:** Follow OSHA regulations, use NIOSH approved respirators and cartridges as needed.

**Ventilation:** General and local ventilation as situation dictates. Use mechanical ventilation to control mist if necessary.

**Protective Clothing:** Use of rubber gloves and protective suits may be needed where splash or spray hazards exist.

**Eye Protection:** Use chemical goggles, where splash hazard exists wear full face shield.

**Other Protective Clothing or Equipment:** N/A

**Work/Hygienic Practices:** Wash hands thoroughly with soap and water before eating, drinking, smoking, and using toilet facilities.

#### Section IX - Physical and Chemical Properties

**Physical State:** Liquid

**pH:** N/A

**Melting Point/Range:** N/A

**Boiling Point/Range:** 104°C; 219°F

**Appearance/Color/Odor:** Clear greenish liquid, faint hydrochloric acid odor

**Solubility in Water:** N/A

**Vapor Pressure(mmHg):** N/A

**Specific Gravity(Water=1):** Approx 1.4

**Molecular Weight:** N/A

**Vapor Density(Air=1):** N/A

**% Volatiles:** N/A

**How to detect this compound :** N/A

### Section X - Stability and Reactivity

**Stability:** Stable under normal use and storage. **Hazardous Polymerization:** None

**Conditions to Avoid:** N/A

**Materials to Avoid:** Ferrous Chloride may react with ethylene oxide, potassium and sodium.

**Hazardous Decomposition Products:** Ferric Chloride, ferric oxide, hydrogen chloride or chlorine may be formed under thermal decomposition.

### Section XI - Toxicological Information

N/A

### Section XII - Ecological Information

N/A

### Section XIII - Disposal Considerations

Dispose of in accordance with federal, state and local environmental laws.

### Section XIV - Transport Information

**DOT Proper Shipping Name:** Ferrous Chloride, Solution

**DOT Hazard Class/ I.D. No.:** 8, NA1760, II

### Section XV - Regulatory Information

**Reportable Quantity:** 100 Lbs. (45.4 Kilograms)

**NFPA Rating:** Health - 2; Fire - 0; Reactivity - 0

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

**Carcinogenicity Lists:**

**NTP:** No

**ARC Monograph:** No

**OSHA Regulated:** No

### Section XVI - Other Information

**Synonyms/Common Names:** Iron (II) Chloride,  $\text{FeCl}_2$  (Aqueous)

**Chemical Family/Type:** N/A

**DOT Proper Shipping Name:** Ferrous Chloride Solution

**Section changed since last revision:** XV

**IMPORTANT!** Read this MSDS before use or disposal of this product. Pass along the information to employees and any other persons who could be exposed to the product to be sure that they are aware of the information before use or other exposure. This MSDS has been prepared according to the OSHA Hazard Communication Standard [29 CFR

1910.1200]. The MSDS information is based on sources believed to be reliable. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse are beyond our control, **Hill Brothers Chemical Company** makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Also, additional information may be necessary or helpful for specific conditions and circumstances of use. It is the user's responsibility to determine the suitability of this product and to evaluate risks prior to use, and then to exercise appropriate precautions for protection of employees and others.

**MATERIAL SAFETY DATA SHEET**

PRODUCT

**NALCLEAR(R) 7768**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**PRODUCT NAME : **NALCLEAR(R) 7768**

APPLICATION : FLOCCULANT

COMPANY IDENTIFICATION :  
Nalco Company  
1601 W. Diehl Road  
Naperville, Illinois  
60563-1198

EMERGENCY TELEPHONE NUMBER(S) : (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING

HEALTH : 0 / 1 FLAMMABILITY : 1 / 1 INSTABILITY : 0 / 0 OTHER :  
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

**3. HAZARDS IDENTIFICATION****\*\*EMERGENCY OVERVIEW\*\*****CAUTION**

May cause irritation with prolonged contact. Toxic to aquatic organisms.

Do not get in eyes, on skin, on clothing. Do not take internally. wear suitable protective clothing. Keep container tightly closed. Water in contact with the product will cause slippery floor conditions. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of soap and water. Protect product from freezing.

May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :

Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :

May cause irritation with prolonged contact.

SKIN CONTACT :

May cause irritation with prolonged contact.

INGESTION :

Not a likely route of exposure. If swallowed a jelly mass may form which in digestion may cause blockage.

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## MATERIAL SAFETY DATA SHEET

PRODUCT

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### INHALATION :

Not a likely route of exposure. No adverse effects expected.

### SYMPTOMS OF EXPOSURE :

#### Acute :

A review of available data does not identify any symptoms from exposure not previously mentioned.

#### Chronic :

Frequent or prolonged contact with product may defat and dry the skin, leading to discomfort and dermatitis.

### AGGRAVATION OF EXISTING CONDITIONS :

A review of available data does not identify any worsening of existing conditions.

## 4. FIRST AID MEASURES

### EYE CONTACT :

Flush affected area with water. If symptoms develop, seek medical advice.

### SKIN CONTACT :

Remove contaminated clothing. Wash off affected area immediately with soap and plenty of water. If symptoms develop, seek medical advice.

### INGESTION :

Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. If symptoms develop, seek medical advice.

### INHALATION :

Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice. Remove to fresh air, treat symptomatically. Get medical attention.

### NOTE TO PHYSICIAN :

Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

## 5. FIRE FIGHTING MEASURES

FLASH POINT : > 200 °F / > 93.3 °C ( PMCC )

### EXTINGUISHING MEDIA :

Foam, Dry powder, Carbon dioxide, Other extinguishing agent suitable for Class B fires

### UNSUITABLE EXTINGUISHING MEDIA :

Do not use water unless flooding amounts are available.

### FIRE AND EXPLOSION HAZARD :

May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions.

### SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :

In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

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## MATERIAL SAFETY DATA SHEET

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### 6. ACCIDENTAL RELEASE MEASURES

#### PERSONAL PRECAUTIONS :

Notify appropriate government, occupational health and safety and environmental authorities. Do not touch spilled material. Stop or reduce any leaks if it is safe to do so. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection).

#### METHODS FOR CLEANING UP :

**SMALL SPILLS:** Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. Water in contact with the product will cause slippery floor conditions. **LARGE SPILLS:** Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

#### ENVIRONMENTAL PRECAUTIONS :

This product is toxic to fish. It should not be directly discharged into lakes, ponds, streams, waterways or public water supplies.

### 7. HANDLING AND STORAGE

#### HANDLING :

Do not take internally. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled. Avoid eye and skin contact.

#### STORAGE CONDITIONS :

Store separately from oxidizers. Store the containers tightly closed. Protect product from freezing.

#### SUITABLE CONSTRUCTION MATERIAL :

Hastelloy C-276, Stainless Steel 316L, Viton, Stainless Steel 304, Teflon, Plasite 7122, Inconel 625, Plasite 4300, CPVC (rigid), Polypropylene (rigid), Polyethylene (rigid)

#### UNSUITABLE CONSTRUCTION MATERIAL :

Brass, Neoprene, Buna-N, Natural rubber, Polyurethane, Hypalon, EPDM, Mild steel, Galvanized metals, Polyethylene tubing

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### OCCUPATIONAL EXPOSURE LIMITS :

This product does not contain any substance that has an established exposure limit.

#### ENGINEERING MEASURES :

General ventilation is recommended.

#### RESPIRATORY PROTECTION :

Where concentrations in air may exceed the limits given in this section, the use of a half face filter mask or air supplied breathing apparatus is recommended. A suitable filter material depends on the amount and type of chemicals being handled. Consider the use of filter type: Organic vapor cartridge, with a Particulate pre-filter. If

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# MATERIAL SAFETY DATA SHEET

PRODUCT

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respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

**HAND PROTECTION :**

Nitrile gloves, PVC gloves

**SKIN PROTECTION :**

Wear standard protective clothing.

**EYE PROTECTION :**

Wear chemical splash goggles.

**HYGIENE RECOMMENDATIONS :**

Keep an eye wash fountain available. Keep a safety shower available. Use good work and personal hygiene practices to avoid exposure. Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

**HUMAN EXPOSURE CHARACTERIZATION :**

Based on our recommended product application and personal protective equipment, the potential human exposure is: Moderate

## 9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Emulsion
APPEARANCE	Off-white
ODOR	Slight, hydrocarbon
SPECIFIC GRAVITY	1.04 @ 77 °F / 25 °C
DENSITY	8.55 - 9.05 lb/gal
SOLUBILITY IN WATER	Emulsifiable
pH (1 %)	6.8
VISCOSITY	200 - 1,700 cps @ 77 °F / 25 °C
FREEZING POINT	26 °F / -3 °C
BOILING POINT	215 °F / 102 °C
VOC CONTENT	26.2 % EPA Method 24

Note: These physical properties are typical values for this product and are subject to change.

## 10. STABILITY AND REACTIVITY

**STABILITY :**

Stable under normal conditions.

**HAZARDOUS POLYMERIZATION :**

Hazardous polymerization will not occur.

**MATERIAL SAFETY DATA SHEET****PRODUCT****NALCLEAR(R) 7768****EMERGENCY TELEPHONE NUMBER(S)****(800) 424-9300 (24 Hours) CHEMTREC****CONDITIONS TO AVOID :**

Freezing temperatures.

**MATERIALS TO AVOID :**

Addition of water results in gelling. Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors.

**HAZARDOUS DECOMPOSITION PRODUCTS :**

Under fire conditions: Oxides of carbon, Oxides of nitrogen

**11. TOXICOLOGICAL INFORMATION**

No toxicity studies have been conducted on this product.

**SENSITIZATION :**

This product is not expected to be a sensitizer.

**CARCINOGENICITY :**

None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

**HUMAN HAZARD CHARACTERIZATION :**

Based on our hazard characterization, the potential human hazard is: Low

**12. ECOLOGICAL INFORMATION****ECOTOXICOLOGICAL EFFECTS :**

The following results are for the product, unless otherwise indicated.

**ACUTE FISH RESULTS :**

Species	Exposure	LC50	Test Descriptor
Fathead Minnow	96 hrs	240 mg/l	Similar Product
Rainbow Trout	96 hrs	8,500 mg/l	1% Aqueous Solution of Product
Sheepshead Minnow	96 hrs	> 1,000 mg/l	1% Aqueous Solution of a Similar Product
Inland Silverside	96 hrs	90.7 mg/l	Product
Rainbow Trout	96 hrs	157.5 mg/l	Product

**ACUTE INVERTEBRATE RESULTS :**

Species	Exposure	LC50	EC50	Test Descriptor
Mysid Shrimp ( <i>M. litoralis</i> )	96 hrs	188.9 mg/l		Product
Daphnia magna	48 hrs	200 mg/l		1% Aqueous Solution of Product
Mysid Shrimp ( <i>Mysidopsis bahia</i> )	96 hrs	67.4 mg/l		Product
Daphnia magna	96 hrs	400 mg/l		1% Aqueous Solution of a Similar Product

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**MATERIAL SAFETY DATA SHEET****PRODUCT****NALCLEAR(R) 7768****EMERGENCY TELEPHONE NUMBER(S)****(800) 424-9300 (24 Hours) CHEMTREC**

Daphnia magna	48 hrs	0.12 mg/l	Similar Product
Daphnia magna	48 hrs	0.694 mg/l	Product

**AQUATIC PLANT RESULTS :**

Species	Exposure	EC50/LC50	Test Descriptor
Marine Algae (Skeletonema costatum)	72 hrs	23 mg/l (EC50)	Product

**PERSISTENCY AND DEGRADATION :**

Chemical Oxygen Demand (COD) : 429,000 mg/l

Biological Oxygen Demand (BOD) :

Incubation Period	Value	Test Descriptor
5 d	200,000 mg/l	Product

The organic portion of this preparation is expected to be inherently biodegradable.

**MOBILITY :**

The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models. If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
<5%	10 - 30%	70 - 90%

The portion in water is expected to be soluble or dispersible.

**BIOACCUMULATION POTENTIAL**

Component substances have a potential to bioaccumulate.

**ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION**

Based on our hazard characterization, the potential environmental hazard is: Low

Based on our recommended product application and the product's characteristics, the potential environmental exposure is: Moderate

If released into the environment, see CERCLA/SUPERFUND in Section 15.

**13. DISPOSAL CONSIDERATIONS**

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.



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As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

### 14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

#### LAND TRANSPORT :

Proper Shipping Name :

PRODUCT IS NOT REGULATED DURING  
TRANSPORTATION

#### AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :

PRODUCT IS NOT REGULATED DURING  
TRANSPORTATION

#### MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name :

PRODUCT IS NOT REGULATED DURING  
TRANSPORTATION

### 15. REGULATORY INFORMATION

#### NATIONAL REGULATIONS, USA :

##### OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :

Based on our hazard evaluation, none of the substances in this product are hazardous.

##### CERCLA/SUPERFUND, 40 CFR 117, 302 :

Notification of spills of this product is not required.

##### SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

##### SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :

This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

##### SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :

Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

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**MATERIAL SAFETY DATA SHEET****PRODUCT****NALCLEAR(R) 7768****EMERGENCY TELEPHONE NUMBER(S)****(800) 424-9300 (24 Hours) CHEMTREC****SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :**

This product does not contain substances on the List of Toxic Chemicals.

**TOXIC SUBSTANCES CONTROL ACT (TSCA) :**

The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

**NSF INTERNATIONAL :**

This product has received NSF/International certification under NSF/ANSI Standard 60 in the coagulation and flocculation category. The official name is "Polyacrylamide." Maximum product application dosage is : 1 mg/l.

**FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :**

This product may contain trace levels (<0.1% for carcinogens, <1% all other substances) of the following substance(s) listed under the regulation:

Substance(s)	Citations
• Cupric Sulphate	Sec. 307, Sec. 311

**CLEAN AIR ACT, Sec. 112 (40 CFR 61, Hazardous Air Pollutants), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :**

None of the substances are specifically listed in the regulation.

**CALIFORNIA PROPOSITION 65 :**

This product does not contain substances which require warning under California Proposition 65.

**MICHIGAN CRITICAL MATERIALS :**

None of the substances are specifically listed in the regulation.

**STATE RIGHT TO KNOW LAWS :**

None of the substances are specifically listed in the regulation.

**NATIONAL REGULATIONS, CANADA :****WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) :**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**WHMIS CLASSIFICATION :**

Not considered a WHMIS controlled product.

**CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :**

The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

**INTERNATIONAL CHEMICAL CONTROL LAWS**



## MATERIAL SAFETY DATA SHEET

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**NALCLEAR(R) 7768**

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### AUSTRALIA

All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

### CHINA

All substances in this product comply with the Chemical Control Law and are listed on the Inventory of Existing Chemical Substances China (IECSC).

### EUROPE

The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

### JAPAN

All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Ministry of International Trade & Industry List (MITI).

### KOREA

All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

### PHILIPPINES

All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippine Inventory of Chemicals & Chemical Substances (PICCS).

## 16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

\* The human risk is: Low

\* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

## REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH., (Ariel Insight# CD-ROM Version), Ariel Research Corp., Bethesda, MD.

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## MATERIAL SAFETY DATA SHEET

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Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS# CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS# CD-ROM Version), Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), (Ariel Insight# CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH, (TOMES CPS# CD-ROM Version), Micromedex, Inc., Englewood, CO.

Ariel Insight# (An integrated guide to industrial chemicals covered under major regulatory and advisory programs), North American Module, Western European Module, Chemical Inventories Module and the Generics Module (Ariel Insight# CD-ROM Version), Ariel Research Corp., Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS# CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By : Product Safety Department

Date issued : 01/14/2008

Version Number : 1.16

## 12. APPENDIX B - CALCULATIONS

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Estimated Wet Vault Removal of Particulates

Ferrous/Ferric Chloride Dosage

Sodium Hydroxide Dosage

Estimated Sludge Volume

## **13. APPENDIX C - STORMWATER MODELING RESULTS**

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1.61	Design Storm, in	Acres	Basin Land	SCS Curve Number
20000	Tank Size, Gallons	0.84	Roofs	0.98
350	Transfer Rate, gpm	3.65	Paved Surface	0.98
200	Treatment Rate, gpm	0.67	Landscaped	0.90

#### 24-Hour Design Storm Hyetograph Values

#### SCS Type 1A Rainfall Distribution Resolved to 10-minute time intervals

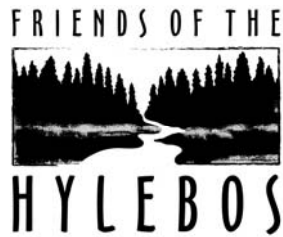
Time from beginning of Storm (min.)	Percent of Precip.	Cumulative Percent	Stormwater Runoff Volume, Gal.	Stormwater Pumped to Detention	Tank Contents, Gal.	Volume Treated, Gal.	Amount Not Pumped	Amount Over in Tank
10	0.40	0.40	875	875	875	0	0	0
20	0.40	0.80	875	875	1750	0	0	0
30	0.40	1.20	875	875	2625	0	0	0
40	0.40	1.60	875	875	3500	0	0	0
50	0.40	2.00	875	875	2375	2000	0	0
60	0.40	2.40	875	875	3250	0	0	0
70	0.40	2.80	875	875	2125	2000	0	0
80	0.40	3.20	875	875	3000	0	0	0
90	0.40	3.60	875	875	3875	0	0	0
100	0.40	4.00	875	875	2750	2000	0	0
110	0.50	4.50	1094	1094	3844	0	0	0
120	0.50	5.00	1094	1094	2937	2000	0	0
130	0.50	5.50	1094	1094	4031	0	0	0
140	0.50	6.00	1094	1094	3125	2000	0	0
150	0.50	6.50	1094	1094	2218	2000	0	0
160	0.50	7.00	1094	1094	3312	0	0	0
170	0.60	7.60	1312	1312	2625	2000	0	0
180	0.60	8.20	1312	1312	3937	0	0	0
190	0.60	8.80	1312	1312	3250	2000	0	0
200	0.60	9.40	1312	1312	2562	2000	0	0
210	0.60	10.00	1312	1312	3875	0	0	0
220	0.60	10.60	1312	1312	3187	2000	0	0
230	0.70	11.30	1531	1531	2718	2000	0	0
240	0.70	12.00	1531	1531	4250	0	0	0
250	0.70	12.70	1531	1531	3781	2000	0	0
260	0.70	13.40	1531	1531	3312	2000	0	0
270	0.70	14.10	1531	1531	2843	2000	0	0
280	0.70	14.80	1531	1531	4374	0	0	0
290	0.82	15.62	1794	1794	4168	2000	0	0
300	0.82	16.44	1794	1794	3962	2000	0	0
310	0.82	17.26	1794	1794	3756	2000	0	0
320	0.82	18.08	1794	1794	3549	2000	0	0
330	0.82	18.90	1794	1794	3343	2000	0	0
340	0.82	19.72	1794	1794	3137	2000	0	0
350	0.95	20.67	2078	2078	3215	2000	0	0



360	0.95	21.62	2078	2078	3293	2000	0	0
370	0.95	22.57	2078	2078	3371	2000	0	0
380	0.95	23.52	2078	2078	3449	2000	0	0
390	0.95	24.47	2078	2078	3527	2000	0	0
400	0.95	25.42	2078	2078	3605	2000	0	0
410	1.34	26.76	2931	2931	4536	2000	0	0
420	1.34	28.10	2931	2931	5468	2000	0	0
430	1.34	29.44	2931	2931	6399	2000	0	0
440	1.80	31.24	3937	3500	7899	2000	437	0
450	1.80	33.04	3937	3500	9399	2000	437	0
460	3.40	36.44	7437	3500	10899	2000	3937	0
470	5.40	41.84	11812	3500	12399	2000	8312	0
480	2.70	44.54	5906	3500	13899	2000	2406	0
490	1.80	46.34	3937	3500	15399	2000	437	0
500	1.34	47.68	2931	2931	16330	2000	0	0
510	1.34	49.02	2931	2931	17261	2000	0	0
520	1.34	50.36	2931	2931	18192	2000	0	0
530	0.88	51.24	1925	1925	18117	2000	0	0
540	0.88	52.12	1925	1925	18042	2000	0	0
550	0.88	53.00	1925	1925	17967	2000	0	0
560	0.88	53.88	1925	1925	17892	2000	0	0
570	0.88	54.76	1925	1925	17817	2000	0	0
580	0.88	55.64	1925	1925	17742	2000	0	0
590	0.88	56.52	1925	1925	17667	2000	0	0
600	0.88	57.40	1925	1925	17592	2000	0	0
610	0.88	58.28	1925	1925	17517	2000	0	0
620	0.88	59.16	1925	1925	17442	2000	0	0
630	0.88	60.04	1925	1925	17367	2000	0	0
640	0.88	60.92	1925	1925	17292	2000	0	0
650	0.72	61.64	1575	1575	16867	2000	0	0
660	0.72	62.36	1575	1575	16442	2000	0	0
670	0.72	63.08	1575	1575	16017	2000	0	0
680	0.72	63.80	1575	1575	15592	2000	0	0
690	0.72	64.52	1575	1575	15167	2000	0	0
700	0.72	65.24	1575	1575	14742	2000	0	0
710	0.72	65.96	1575	1575	14317	2000	0	0
720	0.72	66.68	1575	1575	13892	2000	0	0
730	0.72	67.40	1575	1575	13467	2000	0	0
740	0.72	68.12	1575	1575	13042	2000	0	0
750	0.72	68.84	1575	1575	12617	2000	0	0
760	0.72	69.56	1575	1575	12192	2000	0	0
770	0.57	70.13	1247	1247	11438	2000	0	0
780	0.57	70.70	1247	1247	10685	2000	0	0
790	0.57	71.27	1247	1247	9932	2000	0	0
800	0.57	71.84	1247	1247	9179	2000	0	0
810	0.57	72.41	1247	1247	8426	2000	0	0
820	0.57	72.98	1247	1247	7673	2000	0	0

830	0.57	73.55	1247	1247	6920	2000	0	0
840	0.57	74.12	1247	1247	6166	2000	0	0
850	0.57	74.69	1247	1247	5413	2000	0	0
860	0.57	75.26	1247	1247	4660	2000	0	0
870	0.57	75.83	1247	1247	3907	2000	0	0
880	0.57	76.40	1247	1247	3154	2000	0	0
890	0.50	76.90	1094	1094	2248	2000	0	0
900	0.50	77.40	1094	1094	3341	0	0	0
910	0.50	77.90	1094	1094	2435	2000	0	0
920	0.50	78.40	1094	1094	3529	0	0	0
930	0.50	78.90	1094	1094	2622	2000	0	0
940	0.50	79.40	1094	1094	3716	0	0	0
950	0.50	79.90	1094	1094	2810	2000	0	0
960	0.50	80.40	1094	1094	3904	0	0	0
970	0.50	80.90	1094	1094	2997	2000	0	0
980	0.50	81.40	1094	1094	4091	0	0	0
990	0.50	81.90	1094	1094	3185	2000	0	0
1000	0.50	82.40	1094	1094	2279	2000	0	0
1010	0.40	82.80	875	875	3154	0	0	0
1020	0.40	83.20	875	875	2029	2000	0	0
1030	0.40	83.60	875	875	2904	0	0	0
1040	0.40	84.00	875	875	3779	0	0	0
1050	0.40	84.40	875	875	2654	2000	0	0
1060	0.40	84.80	875	875	3528	0	0	0
1070	0.40	85.20	875	875	2403	2000	0	0
1080	0.40	85.60	875	875	3278	0	0	0
1090	0.40	86.00	875	875	2153	2000	0	0
1100	0.40	86.40	875	875	3028	0	0	0
1110	0.40	86.80	875	875	1903	2000	0	0
1120	0.40	87.20	875	875	2778	0	0	0
1130	0.40	87.60	875	875	3653	0	0	0
1140	0.40	88.00	875	875	2528	2000	0	0
1150	0.40	88.40	875	875	3403	0	0	0
1160	0.40	88.80	875	875	2278	2000	0	0
1170	0.40	89.20	875	875	3153	0	0	0
1180	0.40	89.60	875	875	2028	2000	0	0
1190	0.40	90.00	875	875	2903	0	0	0
1200	0.40	90.40	875	875	3778	0	0	0
1210	0.40	90.80	875	875	2653	2000	0	0
1220	0.40	91.20	875	875	3528	0	0	0
1230	0.40	91.60	875	875	2403	2000	0	0
1240	0.40	92.00	875	875	3278	0	0	0
1250	0.40	92.40	875	875	2153	2000	0	0
1260	0.40	92.80	875	875	3028	0	0	0
1270	0.40	93.20	875	875	1903	2000	0	0
1280	0.40	93.60	875	875	2778	0	0	0
1290	0.40	94.00	875	875	3653	0	0	0

1300	0.40	94.40	875	875	2528	2000	0	0
1310	0.40	94.80	875	875	3403	0	0	0
1320	0.40	95.20	875	875	2278	2000	0	0
1330	0.40	95.60	875	875	3153	0	0	0
1340	0.40	96.00	875	875	2028	2000	0	0
1350	0.40	96.40	875	875	2903	0	0	0
1360	0.40	96.80	875	875	3778	0	0	0
1370	0.40	97.20	875	875	2653	2000	0	0
1380	0.40	97.60	875	875	3528	0	0	0
1390	0.40	98.00	875	875	2403	2000	0	0
1400	0.40	98.40	875	875	3278	0	0	0
1410	0.40	98.80	875	875	2153	2000	0	0
1420	0.40	99.20	875	875	3028	0	0	0
1430	0.40	99.60	875	875	1903	2000	0	0
1440	0.40	100.00	875	875	2778	0	0	0
Totals:			218,746	202,778		200,000	15,968	0
							7%	Percent Untr



## ATTACHMENT B

PO Box 24971  
Federal Way, WA 98093  
33305 1<sup>st</sup> Way S. Ste. B104  
Federal Way, WA 98003  
Office: 253.874.2005  
Fax: 253.835.5020  
www.hylebos.org

August 28, 2008



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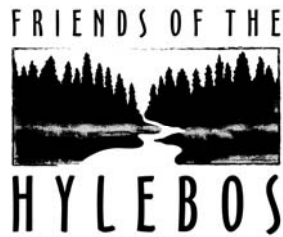
To Whom It May Concern:

Friends of the Hylebos has reviewed the draft consent decree in the matter of Puget Soundkeeper Alliance v. Tacoma Metals, Incorporated and will review the final consent decree once entered by the Court. Friends of the Hylebos has agreed to accept \$20,000 from Tacoma Metals, Incorporated as part of the settlement in the above-referenced matter, and will use such funds to conduct invasive removal and treatment of approximately 22,000 square feet of wetland and buffer habitat at the Spring Valley Ranch\_Kim Property along the West branch of Hylebos Creek in southern Federal Way.

Friends of the Hylebos will not use any money it receives under the consent decree for political lobbying activities. Friends of the Hylebos will submit a letter to the Court, Department of Justice, and the parties, describing how the funds have been spent.

Sincerely,

Chris Carrel  
Executive Director



PO Box 24971  
Federal Way, WA 98093  
33305 1<sup>st</sup> Way S. Ste. B104  
Federal Way, WA 98003  
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Tom Pierson, CEO  
Federal Way Chamber of Commerce  
Steve Lee, P.E., Surface Water Utilities  
City of Renton

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Robert Heath  
Walt Schrader  
Eric Stavney  
Judy Turpin

**STAFF**

Chris Carrel  
Executive Director  
[chinook@hylebos.org](mailto:chinook@hylebos.org)  
Hillary KleeB  
Restoration Coordinator  
[streamteam@hylebos.org](mailto:streamteam@hylebos.org)  
Sheila Jackson  
Development and  
Communication Director  
[sheila@hylebos.org](mailto:sheila@hylebos.org)  
Tamera Bull  
Administrative Assistant  
[tamera@hylebos.org](mailto:tamera@hylebos.org)

August 27, 2008

Katie Kolarich  
Puget Soundkeeper Alliance  
5309 Shilshole Ave NW, Suite 215  
Seattle, WA 98107



Dear Ms. Kolarich,

Thank you for making me aware of the potential restoration funding related to Clean Water Act suit settlement discussions. I am proposing for consideration funding to conduct invasive removal and treatment of approximately 22,000 square feet of wetland and buffer habitat at the Spring Valley Ranch\_Kim Property along the West branch of Hylebos Creek in southern Federal Way. The proposed work is part of a larger comprehensive stream and wetland restoration project, combining several mitigation and grant projects.

The proposed work also fits within and supports the Hylebos Creek Conservation Initiative, the Friends' watershed conservation strategy that seeks to preserve and restore 745 acres of contiguous stream, wetland and forest habitat, stretching from the West Hylebos Wetlands to the mouth of Hylebos Creek at the Hylebos Waterway in Commencement Bay.

I look forward to answering any questions you may have about this proposal.

Sincerely,

Chris Carrel  
Executive Director

**Puget Soundkeeper Alliance**  
**Request for Proposal**  
**(Please limit your proposal to two pages)**

**Project Title:**

Applicant Organization: Friends of the Hylebos  
Mission Statement: To conserve and restore the West Hylebos  
Wetlands and the greater Hylebos Creek Watershed  
Contact/Title: Chris Carrel, Executive Director  
Mailing address: PO Box 24971, Federal Way, WA 98093  
Phone number: 253.874.2005  
Email address: [chinook@hylebos.org](mailto:chinook@hylebos.org)  
Website address: [www.hylebos.org](http://www.hylebos.org)  
Organization Budget for 2007: \$507,835  
Amount requested: \$20,000  
501 (c) (3) Status: We are a 501 (c) (3) tax-exempt  
organization

**Project Summary:**

The Spring Valley Ranch\_Kim property is a 10-acre property that was preserved in 2006 by the Friends, the City of Federal Way and King County Conservation Futures. The parcel contains a tributary to the West Hylebos Creek, and several acres of wetland and wetland buffer. The site contains chum salmon spawning habitat and coho rearing habitat. The property is adjacent 30 acres of stream and wetland mitigation properties on the mainstem of the West Hylebos Creek.

The Kim Property suffers from a moderate to severe invasive weed infestation. Invasives found on the site include Himalayan blackberry, yellow iris, reed canarygrass and bitter nightshade. Working with the city of Federal Way, the Friends has developed a conceptual site plan for invasive control and restoration of native plants on the eastern half of the property that includes the Hylebos Creek tributary (and salmon habitat) and the wetland. The city of Federal Way has authorized the Friends to restore this site through grants and/or mitigation projects. Initial invasive removal and native planting occurred on 4,000 square feet of the site in 2006. Once the eastern portion of the property is complete, we'll develop restoration plans for the remainder of the site.

We have \$7,000 in grants allocated to work on the site. We also have an agreement with a developer to commit \$21,500 to work at the site for off-site mitigation from a small residential project in the city of Federal Way. The city has approved the work and we are currently developing a payment and contracting mechanism for the mitigation. With a recent commitment of \$17,500 from a previous Clean Water Act-related consent decree, we will be able to carry out invasive control and planting on more than 23,000 square feet of the site.

The following Mitigation Proposal below would enable us to nearly double invasive removal to address approximately 45,000 square feet.

The proposed work will enhance degraded stream and wetland habitat along a portion of Hylebos Creek that supports Chinook, coho and chum salmon, and a variety of birds, including bald eagles, belted kingfishers, red-tailed hawks, American dippers and great blue herons. Future establishment of native wetland and streamside vegetation will improve nutrient input to the creek and enhance stream temperatures and water quality.

**Project Plan:**

If the proposed funding is approved, we will direct restoration crews (for approximately 12 days at \$1,260/day) to remove approximately 22,000 square feet of invasive species, mainly consisting of Himalayan blackberry and bitter nightshade with some reed canarygrass. Most of the cleared area will be covered with commercial grade black landscaping fabric and left in place for two growing seasons. The solar heating of the soil will sterilize remaining root and seed stock of invasives. This will provide ideal conditions for planting native vegetation and will reduce future maintenance needs for those plants.

After two growing seasons are completed, we will remove the landscaping fabric and replant the area with native vegetation appropriate for the soil and moisture conditions. This proposal is for the invasive removal phase of the project. We will secure additional funding to implement the revegetation phase.

**Project Budget:**

FOH Staff	\$3,000
Restoration Crews	\$15,120
Project Supplies	\$1,800
Mileage	\$80
<b>Total</b>	<b>\$20,000</b>

**STEWARDSHIP PARTNERS**



Helping Landowners Preserve the Environment

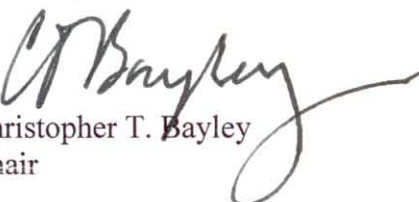
August 28, 2008

Katie Kolarich  
Program Coordinator  
Puget Soundkeeper Alliance  
5309 Shilshole Ave. NW, Suite 215  
Seattle, WA 98107

Dear Ms. Kolarich:

Stewardship Partners has reviewed the draft consent decree in the matter of Puget Soundkeeper Alliance v. Tacoma Metals, Incorporated and will review the final consent decree once entered by the Court. Stewardship Partners has agreed to accept \$30,000 from Tacoma Metals, Incorporated as part of the settlement in the above-referenced matter, and will use such funds for its Rain Garden Classroom Training and Installation Workshops project. Stewardship Partners will not use any money it receives under the consent decree for political lobbying activities. Stewardship Partners will submit a letter to the Court, Department of Justice, and the parties, describing how the funds have been spent.

Sincerely,

  
Christopher T. Bayley  
Chair

**Board of Directors**

**Chair**

**Christopher T. Bayley**  
Former King County Prosecutor

**Vice-Chair**

**Dana Rasmussen**  
Environmental Protection Agency (ret)

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Triangle Associates, Inc

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Bryant Christie, Inc.

**Eugene Carlson**

Dow Jones & Co. (ret)

**Peter Dykstra**

Trust for Public Land

**William C. Hartmann**

Alphabet Lane

**Kristin Hyde**

Good Food Strategies, L.L.C.

**Grant Jones**

Jones & Jones Architects, Ltd.

**Rick White**

Former U.S. Congressman  
1st District

**David J. Burger**

Executive Director



## **Proposal to Improve Water Quality in Commencement Bay**

**Project Title:** Rain Garden Classroom Training and Installation Workshops

**Applicant Organization:** Stewardship Partners

**Mission Statement:** Stewardship Partners helps private landowners restore and preserve the natural landscapes of Washington State. We do this by promoting and implementing incentive-based programs that encourage landowners to participate in fish and wildlife conservation and restoration activities while simultaneously meeting their economic needs through sustainable land management.

**Contact/Title:** David Burger/Executive Director

**Mailing address:** 1411 4th Avenue, Suite 1425 Seattle, WA 98101

**Phone number:** 206.292.9875

**Email address:** [db@stewardshippartners.org](mailto:db@stewardshippartners.org)

**Website address:** <http://www.stewardshippartners.org>

**Organization Budget for 2008:** \$787,000

**Amount requested:** \$30,000

**501 (c) (3) Status:** Stewardship Partners is a 501(c)(3) non-profit organization

### **Project summary:**

This grant will improve water quality, strengthen local partnerships and encourage community participation through classroom training and workshops to install fully functioning demonstration rain gardens. As our area grows, increasing amounts of native forest and prairie lands are replaced by roads, roofs, driveways and other impervious surfaces. Rainfall that was previously intercepted by the forest canopy and soaked into the soils now becomes stormwater runoff flowing across the landscape. Localized flooding and pollutants are entering streams and rivers at increasing rates. This grant would fund the training of homeowners and business owners, showing how they can have an immediate impact with easy and inexpensive to build rain gardens. The training would examine how rain gardens work to mimic natural forests, and how other low impact development tools are employed in stormwater management. Classroom activity is linked to actual installation workshops where volunteers will help design and install rain gardens that treat and infiltrate roof and driveway stormwater.

Stewardship Partners has been conducting workshops and installing rain gardens in the Nisqually Watershed for the last two years and is poised to expand the program into the Puyallup/White watershed. This project further develops a collaboration/partnership between Chambers-Clover Watershed Council, Pierce Conservation District, Stewardship Partners, Pierce County Public Works, and the Native Plant Salvage Project. Training and installation of rain gardens will be conducted in the Puyallup Watershed and the portions of the Clover-Chambers Watershed that empty into Commencement Bay.

### **Project plan:**

**Classroom training:** We propose a series of 6 two-hour evening workshops for 30 attendees at each event that would focus on the urban homeowner, small business, schools and others public facility owners. Rain gardens will be shown as part of the

larger, Low Impact Development (LID) toolbox. The workshop locations will be identified in collaboration with the Puyallup and Clover-Chambers Watershed Councils. Locations could include the smaller towns like Sumner, Orting, Buckley and Bonney Lake, and larger jurisdictions such as Tacoma and Puyallup. Also, we plan to include a homeowners association that is interested in establishing rain gardens, and a session for landscaping and homebuilding contractors. Tasks distributed among the partnership above include: Training event advertising and marketing, class registration and follow up, identification and coordinating training venues, developing and delivering presentation material

**Installation workshops:** We propose one to two-day workshops around the installation of five demonstration rain gardens to support the classroom training. The rain gardens would be designed in accordance with the WSU Rain Garden Handbook for Western Washington and estimated for 250-400 square feet per rain garden cell. We also propose to develop separately a homeowner's association project where up to eight rain gardens are installed as a group over several weekends. An alternative would to develop a demonstration project where roof stormwater for an entire facility, such as a smaller library or fire station, is completely disconnected and routed into rain gardens. Our experienced team will develop the rain garden design, procurement and delivery of all materials, tools and equipment, oversee the construction, and coordinate and monitor the maintenance requirements with the receiving entity or organization. Tasks distributed among the partnership include: identifying rain garden locations, recruiting volunteers for the installation, project design and installation management, follow up monitoring maintenance.

**Timetable:**

2008

October - Meet with project partners and establish joint goals and strategy

November - Establish classroom training events and locations. Begin outreach and marketing.

December - Establish rain garden locations, begin design and coordination.

2009

January - Media outreach for classroom training. Registration

February-May - Classroom training, evaluation, follow up.

May-September - Rain garden installation workshops

October - Media outreach

Nov- December - Program evaluation

**Project Budget**

Salaries and Benefits	\$3,000
Consultants ( <i>Trainers and Rain Garden Installation</i> )	\$24,000
Travel	\$250
Supplies	\$250
Evaluation	\$500
Overhead	\$2,000
TOTAL	\$30,000



CITIZENS FOR A HEALTHY BAY

917 Pacific Avenue  
Suite 100  
Tacoma, WA 98402  
Phone (253) 383-2429  
Fax (253) 383-2446  
chb@healthybay.org  
www.healthybay.org

September 3, 2008

Ms. Katie Kolarich  
Puget Soundkeeper Alliance  
5309 Shilshole Avenue NW  
Suite 215  
Seattle, WA 98107

RE: Puget Soundkeeper Alliance RFP

Dear Katie:

Please find enclosed Citizens for a Healthy Bay's request for \$20,000.00 to support Citizens for a Healthy Bay's **AAWA Restoration Program on Commencement Bay**. If funded, this program will have a direct and sustained impact on improving the quality of water within the South Sound (Commencement Bay and surrounding waters).

Citizens for a Healthy Bay has reviewed the draft consent decree in the matter of Puget Soundkeeper Alliance v. Tacoma Metals, Incorporated and will review the final consent decree once entered by the Court. Citizens for a Healthy Bay has agreed to accept \$20,000 from Tacoma Metals, Incorporated as part of the settlement in the above-referenced matter, and will use such funds for its Adopt-A-Wildlife Area Habitat Stewardship Program. Citizens for a Healthy Bay will not use any money it receives under the consent decree for political lobbying activities. Citizens for a Healthy Bay will submit a letter to the Court, Department of Justice, and the parties, describing how the funds have been spent.

We very much appreciate the generosity and support of the Puget Soundkeeper Alliance. Thank you in advance for your consideration of this request.

Sincerely,

Leslie Ann Rose

Acting Executive Director

[lrose@healthybay.org](mailto:lrose@healthybay.org)

253-383-2429

*Board of Directors*

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Bruce Kilen  
Dave McEntee  
William Pugh  
Lee Roussel  
Robert Stivers  
Sheri Tonn  
Allen Zulauf

A tax-exempt  
Nonprofit organization with  
501(c)(3) status

Printed on non-secondary  
bleached recycled paper

**Puget Soundkeeper Alliance: Request for Proposal**  
**Citizens for a Healthy Bay**  
**Due: September 2, 2008**

**Project Title: Adopt-A-Wildlife Area (AAWA) Habitat Stewardship Program**

Applicant Organization: Citizens for a Healthy Bay (CHB)

Mission Statement: Citizens for a Healthy Bay engages citizens to clean-up, restore, and protect Commencement Bay and its surrounding waters and habitats.

Contact/Title: Jeanine Riss / Restoration Program Manager

Mailing address: 917 Pacific Avenue Suite 100 Tacoma, WA 98402

Phone number: (253) 383-2429

Email address: jriss@healthybay.org

Website address: www.healthybay.org

Organization Budget for 2008: \$439,400

Amount requested: \$20,000

501 (c) (3) Status: Reissued April 15, 1998.

**Project Summary:**

Citizens for a Healthy Bay (CHB) is a community-based organization dedicated to creating a long-term environmental stewardship ethic in the South Puget Sound Region by engaging citizens in the cleanup, protection and restoration of Commencement Bay and its surrounding waters and habitats. Explicit in our mission is community based stewardship restoration of shoreline habitat in and around Commencement Bay. Through the Adopt-A-Wildlife-Area program (AAWA), stewards trained by CHB conduct monthly monitoring of one of five restoration sites (Mowitch, Middle Waterway, Skookum Wulge, Squally Beach and Yowkwala). Four of these sites are located along the Hylebos Waterway; the fifth is on Middle Waterway. The data collected by the AAWA stewards is used by CHB to create an adaptive management plan for the five sites. This plan is approved by the Natural Resource Damage Assessment Trustees (NRDA) and provides a framework for all restoration activities conducted on the five sites.

It is crucial to the long term success of restoration efforts in Commencement Bay to have continued monitoring and management of any restored habitat until original functions and values are re-established and the sites are self-sustaining. This project will continue CHB's already successful efforts to add to the community-wide vision of a healthy, sustainable corridor of nearshore and upland habitat for salmon and other native wildlife through increased emphasis on site management and habitat restoration. CHB will continue to recruit and train habitat stewards who will assist in the monitoring and maintenance of the 5 above mentioned restoration sites through monthly site inspections, data collection and photo point monitoring. CHB will increase its corps of volunteers and coordinate and carry out restoration based projects with the express intention of enhancing and restoring habitat to its full functions and values.

**Project Plan:**

Citizens for a Healthy Bay will enroll new stewards in the AAWA program and provide them with the necessary training and materials to execute monthly site inspections, data collection and perform quarterly photo point monitoring. Monitoring by site stewards and/or CHB staff will include qualitative (observational) data such as: erosion, human impacts, presence of invasive species, native flora viability and observation of local fauna. As a way of providing the required training CHB will conduct a minimum of 3 formal training sessions and 2 informal training sessions per year to include, but not limited to plant identification and bird identification. CHB will contract with a qualified professional (i.e. Tahoma Audubon or other) to conduct the formal training sessions. As a component of site management CHB will conduct a minimum of 5 habitat restoration projects per year which may include, but are not limited to removal of targeted non-native invasive species, supplemental native species plantings, debris removal and periodic maintenance of structures (i.e. goose exclusion fencing). In order to perform said site management CHB will contract for the technical expertise of local environmental professional agencies such as EarthCorps and/or the Washington Conservation Corps. CHB will recruit community volunteers for the bulk of its labor force and provide them with the necessary training and safety instructions to carry out the above mentioned activities.

**Project Budget:**

The project budget is \$27,333.00. Citizens for a Healthy Bay has secured \$7,333.00 for habitat restoration activities. The proposal to Puget Soundkeeper Alliance requests \$20,000.00 to continue CHB's efforts of protecting and restoring critical nearshore habitat in the Commencement Bay area. Please see the attached spreadsheet for further cost breakdown.

**Funding Priorities:**

If this project is selected for funding at a lower level than requested our priority would be as follows.

- Complete a minimum of 3 habitat restoration projects per year.
- Continued recruitment of AAWA stewards, providing the appropriate materials and training with a minimum of 3 training sessions per year.
- Continued recruitment and expansion of community based volunteers.

[illegible]



ATTACHMENT E



# Puyallup Tribe of Indians

September 9, 2008

Puget Soundkeeper Alliance  
5309 Shilshole Avenue NW, Suite 215  
Seattle, Washington 98107  
ATTN: Katie Kolarich

RE: Clarks Creek Dissolved Oxygen Study

Dear Ms. Kolarich:

The Puyallup Tribe of Indians has reviewed the draft consent decree (as of September 9, 2008 without exhibits) in the matter of Puget Soundkeeper Alliance v. Tacoma Metals, Incorporated and will review the final consent decree once entered by the Court.

The Puyallup Tribe of Indians has agreed to accept \$45,000 from Tacoma Metals, Incorporated as part of the settlement in the above-referenced matter, and will use such funds for its Clarks Creek Dissolved Oxygen Study. The Puyallup Tribe of Indians will not use any money it receives under the consent decree for political lobbying activities. The Puyallup Tribe of Indians will submit a letter to the Court, Department of Justice, and the parties, describing how the funds have been spent.

Thank you for this opportunity to continue our work in the Puyallup River watershed.

Sincerely,

Bill Sullivan, Director  
Natural Resources

**Project Title:** Clarks Creek Dissolved Oxygen Study

**Applicant Organization:** Puyallup Tribe of Indians

**Mission Statement:** To protect, enhance, manage and restore the natural resources of the Puyallup Tribe of Indians, for both the protection of its members as well as the environment.

**Contact/Title:** Char Naylor, Water Quality Manager

**Mailing address:** 3009 E. Portland Ave, Tacoma, WA 98404 (Natural Resources Dept.)

**Phone number:** (253) 841-0382

**Email address:** char.naylor@puyalluptribe.com

**Website address:** <http://www.puyallup-tribe.com>

**Organization Budget for 2008:** \$1.5 million (Environmental Department Budget includes federal grants)

**Amount requested:** \$45,000

501 (c) (3) Status: No

**Project summary:**

**Purpose, rationale, and need:** The Tribe proposes to investigate the relationship between low dissolved oxygen levels, fine sediment, and excess macrophyte growth in a tidally influenced, spring-fed tributary (Clarks Creek) of the lower Puyallup River in the lowlands of Southern Puget Sound. Clarks Creek is a large, urban tributary on the Puyallup Reservation (with flows of about 50-60cfs), entering the Puyallup River at river mile 5.8. Due to the consistent supply of cold water from springs, Clarks Creek is one of the most productive fish-bearing streams on the Puyallup Reservation, supporting chinook, coho, chum, steelhead, and cutthroat salmon, and bull trout. However, the creek appears on the 303(d) list as a category 2 “water of concern” based on sampling the Tribe has done that indicates oxygen levels sometimes approach 5-6 mg/L in the latter reaches of the creek, which are near lethal limits for salmon. It is unclear whether the oxygen depression is a natural condition or caused from anthropogenic inputs. It is also unclear if there is a relationship between dissolved oxygen, fine sediment, and macrophyte growth in the creek. This project is of particular importance to the Tribe because the cutting of the invasive macrophyte every spring by a local jurisdiction results in clogging the Tribe’s Chinook hatchery intake, thereby causing the hatchery manager to prematurely release over 200,000 juvenile salmon from hatchery acclimation ponds. The annual cutting causes suspension of fine sediment in the creek that further compromises the survival of the released juvenile salmon, “fertilizing” the growth of the Elodea for the upcoming spring. In addition to causing the premature release of juvenile salmon and compromising the Tribe’s hatchery program, decaying plant material that falls to the bottom of the creek also poses a problem by potentially lowering dissolved oxygen,



trapping sediment, destroying spawning areas, and restricting flows. Providing remedies to address the water quality issues in Clarks Creek will not only increase productive habitat, and protect hatchery production for the benefit of all users of the creek, but is an important contribution to the recovery of salmon in Puget Sound.

### **Project Plan:**

**Goals and Objectives:** Primary objectives of the investigation are to answer the following questions: 1) Is there dissolved oxygen impairment in the creek causing violations of state water quality criteria; 2) Is this condition due to natural conditions or anthropogenic influences; and 3) To what extent are dense growths of submerged macrophytes and fine sediments associated with low dissolved oxygen levels in the creek? The answers to these questions will drive water quality management strategies and remedies that the Tribe will pursue in coordination with local jurisdictions and the Washington Department of Ecology, who has CWA authority in the creek. Answering these questions will not only benefit the Tribe, but the local jurisdiction that spends over \$100,000/annually to cut the elodea for flood conveyance and further implementation of the recently completed Clarks Creek TMDL for coliforms.

**Activities/Approach:** The primary activities of the study include: 1) scoping 3 monitoring stations and securing owner approval of water quality meter installations; developing a short quality assurance plan; 3) conducting continuous dissolved oxygen monitoring, sediment sampling, and surveying elodea growth at all 3 stations in early spring, prior to elodea growth, during dense elodea growth, and after the elodea cutting at an upstream station (but before downstream cutting). Continuous monitoring will occur for up to 7 days. The meters will be housed in secure installations and samples analyzed at a certified laboratory. QA samples (winklers) will be collected for dissolved oxygen. The tribe will facilitate input from others regarding station scoping and timing of monitoring; 3) Data will be analyzed using descriptive statistics and compared to relevant criteria; and 4) a technical memorandum summarizing the data will be developed with management strategies to address low oxygen levels, elodea growth, and sediment inputs in the creek. The Tribe intends to work with a contractor to complete this project, and will provide labor and some equipment.

**Expected Accomplishments:** 1) To obviate the need for annual elodea cutting by developing management remedies; 2) resolve the question of dissolved oxygen impairment in the creek (natural vs. anthropogenic); 3) determine to what extent elodea growth is associated with low dissolved oxygen levels; and progress in implementing the Clarks Creek TMDL.

**Timetable:** The project (scoping, developing quality assurance plan, monitoring and sampling, data analysis, and development of technical memorandum) will be completed in one year.

**Budget:**

Project startup (field reconnaissance, site selection, owner approval)	\$4,782
Monitoring equipment procurement & installation	\$6,445
Monitoring	\$6,262
Data analysis and reporting	\$8,646
Project management	\$2,465
Installation supplies	\$600
Secure enclosures, batteries, and locks	\$804
YSI 600 OMS sonde w/ROX DO sensor	\$13,596
Sonde cable	\$200
Tax and shipping	\$1,000
Sediment samples	\$200
<b>Total</b>	<b>\$45,000</b>



## ATTACHMENT F

September 5, 2008

Katie Kolarich  
Program Coordinator  
Puget Soundkeeper Alliance  
5309 Shilshole Ave. NW, Suite 215  
Seattle, WA 98107

Dear Katie,

People for Puget Sound has reviewed the draft consent decree in the matter of Puget Soundkeeper Alliance v. Tacoma Metals, Incorporated and will review the final consent decree once entered by the Court.

People for Puget Sound has agreed to accept \$20,000 from Tacoma Metals, Incorporated as part of the settlement in the above-referenced matter, and will use such funds for its South Sound Water Quality Monitoring Project in Tacoma. People for Puget Sound will not use any money it receives under the consent decree for political lobbying activities.

People for Puget Sound will submit a letter to the Court, Department of Justice, and the parties, describing how the funds have been spent.

I can be contacted with questions at (206) 382-7007.

Sincerely,

Heather Ritts  
Deputy Director

MAIN OFFICE	NORTH SOUND	SOUTH SOUND
911 Western Avenue, Suite 580 Seattle, WA 98104 tel • 206.382.7007 fax • 206.382.7006 email • people@pugetsound.org	407 Main Street, Suite 201 Mount Vernon, WA 98273 tel • 360.336.1931 fax • 360.336.5422 email • northsound@pugetsound.org	120 East Union Avenue, Suite 204 Olympia, WA 98501 tel • 360.754.9177 fax • 360.534.9371 email • southsound@pugetsound.org

**Supplemental Environmental Projects Proposal  
People For Puget Sound**

***Project Title:*** South Sound Water Quality Monitoring Project – Tacoma

***Applicant Organization:*** People For Puget Sound

***Mission Statement:*** Our mission is to protect and restore Puget Sound and the Northwest Straits -- our living waters, the land and our common future.

***Contact/Title:*** Heather Trim, Urban Bays Project Coordinator

***Mailing address:*** 911 Western Avenue, Suite 580  
Seattle, WA 98104

***Phone number:*** 206-382-7007, ext. 215

***Email address:*** htrim@pugetsound.org

***Web site address:*** www.pugetsound.org

***Org. Budget for 2008:*** \$2.5 million

***Amount requested:*** \$20,000

***501 (c) (3) Status:*** 501(c)(3) registered organization. Our federal EIN is 91-1518715.

**Project summary:**

Glaciers carved Puget Sound into a deep, narrow body of water that is unique in the United States – and is a national treasure. The deep and narrow geometry combined with pollution from extensive human development of the Sound's shorelines and watersheds has led to significant water quality challenges. Different types of problems occur in various parts of Puget Sound. Concerns related to nutrient pollution and low dissolved oxygen are most profound in the South Sound, Hood Canal, and the Whidbey Basin. Toxic contamination problems are most serious in the urban and industrial bays of Puget Sound (such as Commencement Bay, Elliott Bay, and Budd Inlet) and in the predators at the top of the Sound's marine food webs. These water and sediment quality problems impair the habitat and health of aquatic species in Puget Sound.

Chemicals in runoff from combined sewer overflows and stormwater continues to contaminate Puget Sound's inlets and bays. Millions of dollars are being spent to cleanup contaminated sediment sites in the Sound. Limited data are available to determine the levels of contaminants that are in the stormwater and combined sewer flows. Agencies and businesses have limited funds for water and sediment quality sampling; toxic chemical sampling is expensive.

Stormwater monitoring conducted as part of the current Toxics Loading Assessment study by the Department of Ecology has been hampered by a lack of Puget Sound specific urban stormwater and combined sewer overflow system water chemical concentrations.

**Project plan:**

People For Puget Sound proposes to conduct a special water and sediment quality sampling project that will compliment and build upon existing agency-directed sampling efforts. We will target the 15 chemicals or groups of chemicals that are currently under examination by the WA Department of Ecology to determine toxic chemical loadings for Puget Sound. The focus will be on urban water runoff in stormwater so that we can better define the toxic chemical loads introduced into the Sound.

We will select street gutters, stormdrains, culverts, and small creeks that flow into a waterway of Commencement Bay and drain areas of different land use types. We will collect and analyze fine sediment samples (and water samples, if possible) from these locations and create a map showing results. Sediment samples, although less desirable than water samples, will help show the difference of varying landuse types and subbasins. As has been shown by recent studies, we have a poor overall understanding of levels of contaminants in dust and fine particulate matter.

The data we collect will help fill in gaps in urban stormwater chemical concentration levels specific to the Puget Sound region for the chemicals of concern for the Sound.

*Timeline:*

First 3 months: Select sample locations, providing justification, and prepare for field work

Second 3 months: Sample collection and analysis

Third 3 months: Develop map of results and short report

**Project budget:**

If possible, we will try to partner with an agency or organization so that we can maximize efficiencies and therefore analyze more samples.

Sample collection, analysis and results presentation	\$19,000
Administration	\$1,000
<b>Total project budget</b>	<b>\$20,000</b>



**Environmental  
Coalition of  
South Seattle**

A 501 (c) (3) Non-Profit Organization

**ATTACHMENT G**

*Providing Environmental  
Education and Assistance to  
Businesses and Communities  
in the Puget Sound Region*

---

September 7, 2008

U.S. Department of Justice  
P.O. Box 4390  
Ben Franklin Station  
Washington, DC 20044-4390

To Whom It May Concern:

On behalf of all here at the Environmental Coalition of South Seattle, we would like to extend our appreciation to the Department of Justice in assisting our stormwater pollution prevention efforts in Pierce County and Lower Duwamish Watershed.

Stormwater from roads, parking lots and businesses carries nearly 8 million gallons of petroleum into Puget Sound every year. This does not include other toxic contaminants such as, pesticides, mercury, and PCB's that are also discharged to Puget Sound by stormwater.

ECOSS will carry out a strategic stormwater pollution prevention campaign in Pierce County and the Lower Duwamish Watershed. Focusing on businesses with NPDES Industrial Stormwater General Permits (ISWGP), our program will conduct outreach to businesses and provide free education and technical assistance to encourage compliance with their permit requirements. These projects will be ongoing for the next four years.

Environmental Coalition of South Seattle (ECOSS) has reviewed the draft consent decree in the matter of Puget Soundkeeper Alliance v. Tacoma Metals, Incorporated and will review the final consent decree once entered by the Court. ECOSS has agreed to use any funds received from Tacoma Metals, Incorporated as part of the settlement in the above-referenced matter for its Pierce County Stormwater Initiative or its Lower Green/Duwamish Stormwater Initiative. ECOSS will not use any money it receives under the consent decree for political lobbying activities. ECOSS will submit a letter to the Court, Department of Justice, and the parties, describing how the funds have been spent. ECOSS

ECOSS is a 501(c) 3 entity identified by the following tax id number: 91-1613460. Again, thank you for this opportunity and helping us build a more healthy and sustainable Puget Sound.

Sincerely,

Kevin Burrell  
Executive Director

<b><u>Project Title</u></b>	<b>Lower Green/Duwamish Stormwater Initiative</b>
<b><u>Applicant Organization</u></b>	Environmental Coalition of South Seattle (ECOSS)

**Mission Statement**

ECOSS is a non-profit organization working with Puget Sound businesses and neighborhoods for an environmentally responsible community. ECOSS provides environmentally-oriented education, technical resources and other services. We serve as a voice for the community on issues that encourage a clean environment and urban redevelopment.

<b><u>Contact/Title</u></b>	Jordon McEntire / Fund Development
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<b><u>Web site address</u></b>	<a href="http://www.ecoss.org">www.ecoss.org</a>
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<b><u>Organization Budget for 2008</u></b>	\$849,000
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<b><u>501(c)(3) Status</u></b>	91-1613460
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**Project summary**

ECOSS seeks funding to carry out a strategic stormwater pollution prevention campaign in the Lower Green and Duwamish River drainage basins. Focusing in the general areas of Tukwila, Renton and Kent, our program will conduct outreach to businesses and provide free technical assistance and incentives to help them understand and implement stormwater best management practices. Specifically, we will focus on businesses that pose a higher risk and have a direct pathway through stormwater conveyance to the Lower Duwamish and Green Rivers as well as key tributaries such as Mill Creek.

Based on the City of Seattle's successful Stormwater Program, which ECOSS has been implementing with Seattle businesses since 2001, ECOSS' Lower Green/Duwamish Stormwater education program will raise awareness about stormwater pollution among area businesses and help reduce polluted stormwater run-off from reaching and further harming the Green and Duwamish Rivers as well as Puget Sound.

**Project Overview**

Seattle's hometown river, the Duwamish, was once a meandering waterway that was bordered by fertile farmland. In the early 20<sup>th</sup> century, the final six miles of the river were straightened into a navigable channel, and it was not long before industry replaced agriculture along the banks of the river. Now, in the early 21<sup>st</sup> century, after years of negligence and abuse, this same river has been designated a federal Superfund site and is understood to be one of the most toxic places in the nation.

Over the next several to possibly tens of years, hundreds of millions of dollars and countless man-hours will be spent cleaning up the sediments in the Lower Duwamish. However, ongoing sources of pollution, mostly from stormwater runoff, have already hampered early cleanup efforts leaving serious doubt as to whether or not, or rather how long, the Duwamish River sediments will remain below cleanup standards once remediation is complete.

Much work has been done to identify and curb ongoing sources of contaminants from reaching the Duwamish River. In fact, government agencies at the city, county, and state levels have made commendable efforts to address source control of polluted stormwater within the entire 32 square mile drainage area of the Superfund site. However, there are some questions concerning the input and amount of various pollutants, including metals and PCBs, from upriver sources that may enter the federally designated Superfund site, possibly as allowable "background levels". As such, our efforts hope to address some of these issues through a targeted education campaign in the mixed commercial and industrial areas of Tukwila, Renton, and Kent. If we can further diminish the input

pollutants into the Superfund site, not just from within the designated site and corresponding drainage area, but also from upstream sources of the Lower Duwamish, the better the likelihood for the long term viability of the cleanup and for the overall health of Puget Sound.

### **Project Objectives**

The objectives of ECROSS' Green/Duwamish Stormwater Initiative include:

- Improve water quality in the Lower Green and Duwamish Rivers by reducing the level of polluted stormwater run-off generated by businesses and business activities
- Raise awareness among small and medium-sized businesses about the issue of stormwater pollution and ways that these businesses can reduce, control, and prevent it
- Develop new partnerships through collaboration with key business and trade groups, agency and municipal staff, and other non-profits in order to leverage the efforts of this initiative

### **Timetable**

Date	Activity	Outcome
Quarter 1	- Identify priority businesses for stormwater outreach and design outreach plan using GIS analysis	Maps and database of key Tukwila, Renton, and Kent businesses based on SIC/NAIC code and drainage infrastructure
	- Compose and mail introductory letter to priority businesses identified	Letter to businesses encouraging participation in SKIP
Quarter 2	- Launch direct outreach effort to businesses, which includes recruiting participants, scheduling site visits, and disseminating stormwater and spill kit materials and technical assistance	Dissemination of education materials to participating businesses; implementation of spill plans and best management practices
Quarter 3	- Present spill kit training workshops	Training session for staff and managers of participating businesses
Quarter 4	- Conduct follow-up survey to evaluate	Evaluation



**Project Title**  
**Applicant Organization**

**Pierce County Stormwater Initiative**  
Environmental Coalition of South Seattle (ECOSS)

**Mission Statement**

ECOSS is a non-profit organization working with Puget Sound businesses and neighborhoods for an environmentally responsible community. ECOSS provides environmentally-oriented education, technical resources and other services. We serve as a voice for the community on issues that encourage a clean environment and urban redevelopment.

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<b><u>Organization Budget for 2008</u></b>	\$849,000
<b><u>501(c)(3) Status</u></b>	91-1613460

**Project summary**

ECOSS seeks funding to carry out a strategic stormwater pollution prevention campaign in Pierce County. Focusing on businesses with NPDES Industrial Stormwater General Permits (ISWGP), our program will conduct outreach to businesses and provide free education and technical assistance to encourage compliance with their permit requirements.

Generally, most ISWGP facilities have implemented a Stormwater Pollution Prevention Plan (SWPPP), a sampling and monitoring plan, and associated best management practices at their facilities. However, many businesses don't have staff or resources to closely monitor the permit requirements. As a result, businesses struggle to stay up to date with documentation and recordkeeping or are unable to meet their benchmarks for sampling due to poor housekeeping or other factors. And even more pressing, some businesses are simply unaware they are not meeting their permit requirements.

The Washington State Department of Ecology has made commendable efforts to work with businesses in addressing their contaminated stormwater runoff. However, with limited resources in the area and still occupying the role as a regulatory agency, Ecology faces obstacles in helping businesses achieve compliance.

Founded in 1994 to be a nexus between government and the business community, ECOSS is in excellent position to help ISWGP facilities achieve stormwater compliance. Acting as a free and confidential resource, ECOSS has been helping Puget Sound businesses reduce their contaminated stormwater runoff since 2000.

**Project Overview**

**Goals**

Long Term Goal: Improve water quality in Puget Sound

Short Term Goal: Increase compliance among Pierce County NPDES ISWGP facilities

**Primary Objectives**

- Provide free and confidential education and technical assistance to businesses with ISWGP in Pierce County and help them achieve compliance

- Explore and develop a referral network with Ecology inspection staff so that when newly identified facilities are asked to obtain an ISWGP, ECOSS can get them started and/or refer them to a list of qualified consultants

#### Timetable

Date	Activity	Outcome
Quarter 1	Identify businesses and design outreach plan using GIS analysis	Maps and database of key ISWGP facilities
Quarter 1	Explore collaborative approach with Ecology inspection staff to better serve existing and new permitted facilities	Increased leverage and legitimacy to carry out program
Quarter 1	Compose and mail introductory letter to priority businesses identified	Letters and post cards to businesses encouraging participation in the program
Quarter 2-4	Launch direct outreach effort to businesses <ul style="list-style-type: none"> <li>• Develop marketing materials</li> <li>• Leverage peer-to-peer relationships with early participants and other key businesses</li> <li>• Provide technical assistance</li> <li>• Create a Implementation Schedule or Task List for participating businesses</li> <li>• Follow up</li> </ul>	Increased compliance or pathway to compliance
Quarter 3-4	Evaluation	A catalogue of business testimonials and details of individual site modifications